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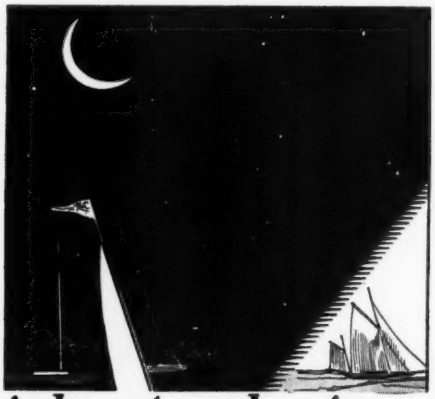

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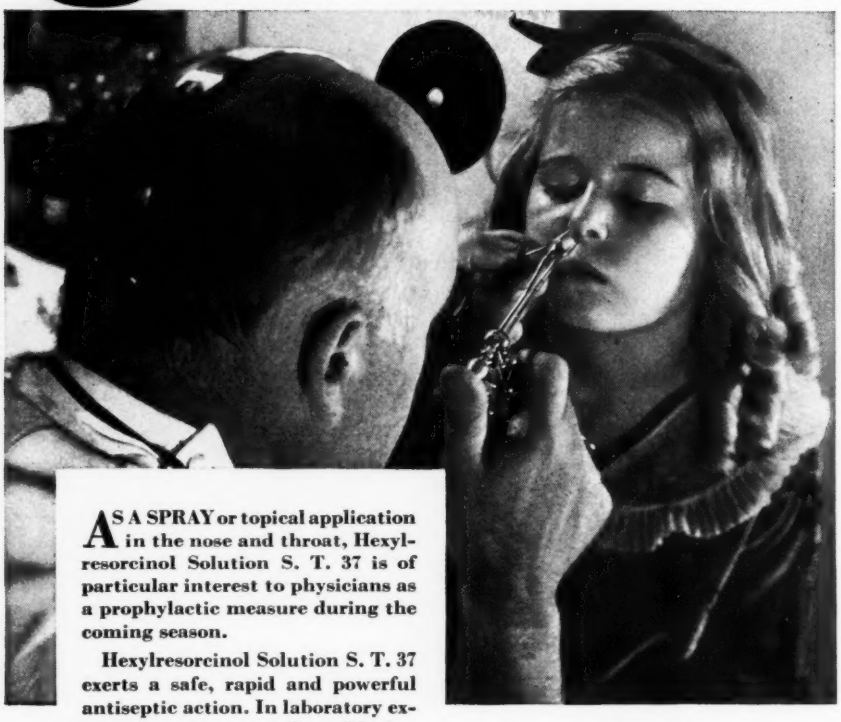

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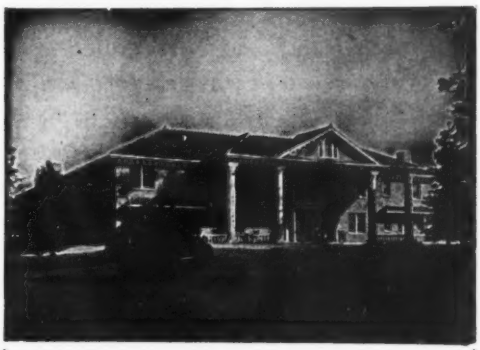

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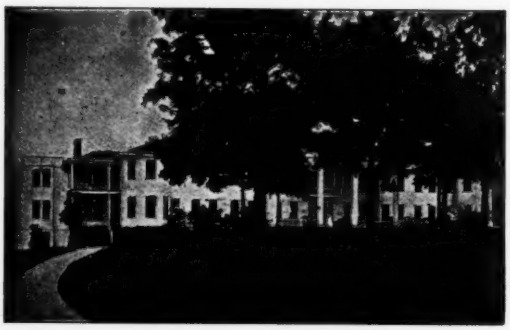

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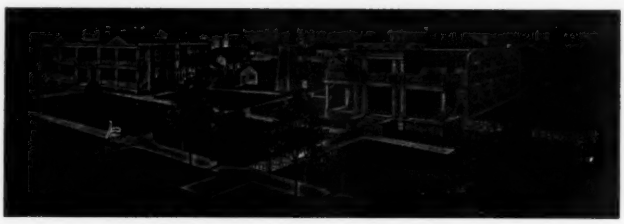

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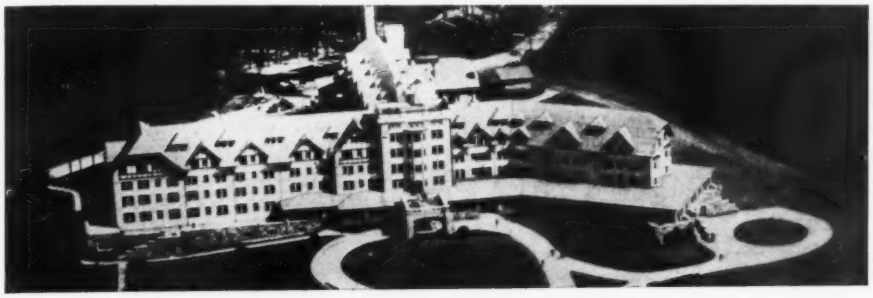

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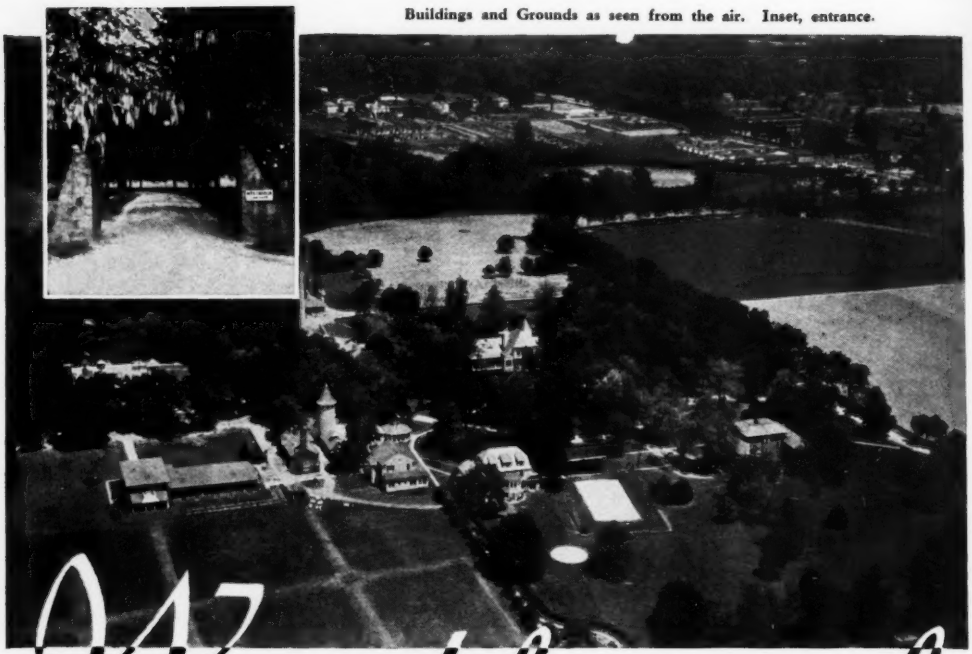

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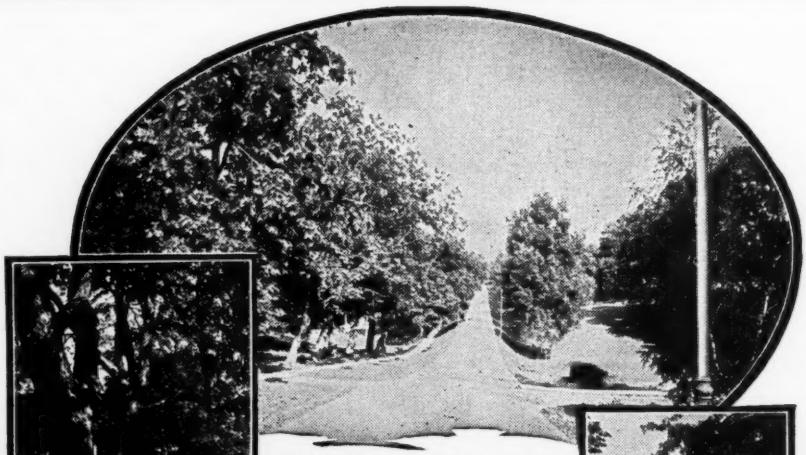

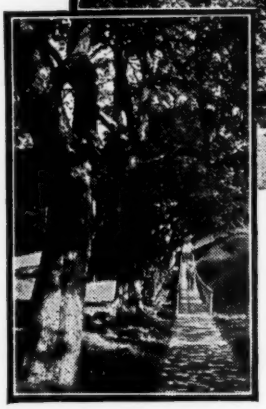

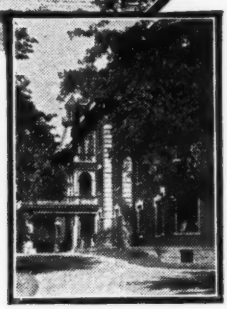

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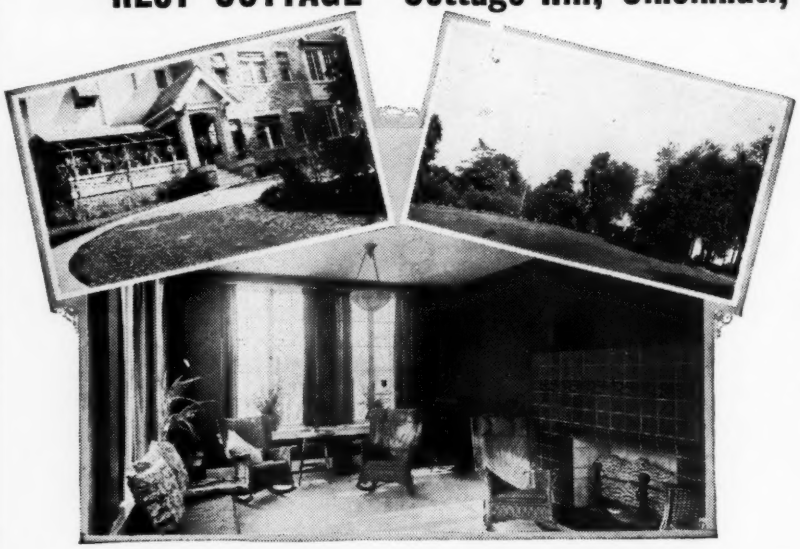

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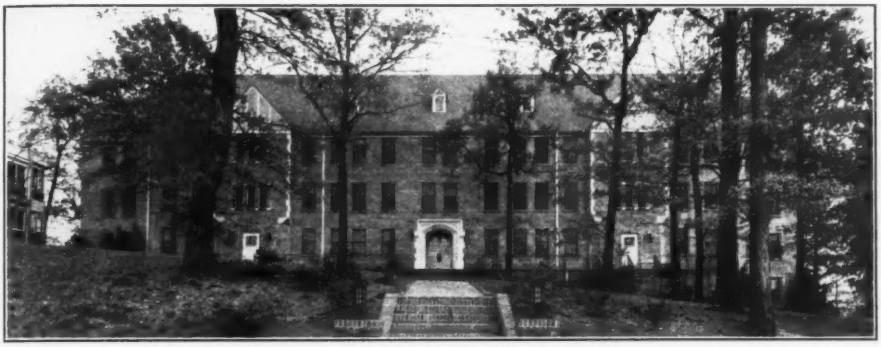

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Volume XXVI NOVEMBER 1933 Number 11

PRIMARY INTRATHORACIC MALIGNANT TUMORS*

By M. PINSON NEAL, M.D.,†
Columbia, Mo.

There is probably no place in the realms of medicine where there is more confusion than in the group of primary intrathoracic malignant tumors. Embryologists and histologists have not agreed upon the derivation of certain tissues in this space. They dispute as to the types of cells found in the thymus, and as to whether the lining cells in the lung alveoli are epithelial or endothelial; that is, whether they are mesodermal or endodermal in origin.

Many pathologists have apparently forsaken their general knowledge of tumors and have tried to create something special for those primary within the thoracic cavity. A return to fundamental principles of tumor pathology is needed with greater efforts centered on histogenetic and morphologic studies.

MATERIAL REPORTED

This article is constructed around unreported cases of distinctive, and at least anatomically and morphologically different types of primary intrathoracic malignant tumors: pleural mesothelioma, mediastinal lymphosarcoma, malignant thymoma (carcinoma type), alveolar lung carcinoma, and bronchiogenic lung carcinoma. In 4 cases, the diagnosis of intrathoracic malignancy was made before death. These were proved by, and the fifth found at, autopsy.

PRIMARY PLEURAL MESOTHELIOMA (PLEURAL CANCER)

While in the literature the pleural new growths are classified under various terms, the one of greatest frequency and importance is the endothelioma or mesothelioma. According to Sprunt,[1] Bloch collected 63 cases of pleural tumors, of which 47 were endotheliomas and 16 sarcomas. The absolute diagnosis often is made only at autopsy, especially when there is also a proved pulmonary tuberculosis, as in *Case 1.* X-ray and fluoroscopic examinations, including the diagnostic pneumothorax described by Fishberg,[2] are the only definite diagnostic adjuncts to history and physical examination.

The primary pleural mesothelioma has the following features:

(1) It is a malignant neoplasm.

(2) The process begins over a wide area, or as multiple nodules that fuse, and tend both to envelop and to compress the lung.

(3) The diffuse form is invariably fatal.

(4) Two types occur: one, that should be termed lymphangio-endothelioma, from the subpleural lymphatics; and the other, the mesothelioma, from the lining pleural cells.

(5) The clinical course and symptoms are those of a chronic pleurisy with thickening, and secondarily, atelectasis, dyspnea and hydrothorax, or usually hemothorax.

Case 1.—J. V., Jr., a white student, aged 19, patient of Dr. Dan G. Stine, Columbia, Missouri, for several years had an arrested pulmonary tuberculosis. He was seen in March, 1923, for influenza, and in April because of pain in the left chest. Three months later another physician thought he had "an intercostal rheumatism." From a fall in September he received one or more broken ribs posteriorly. In November the pain in the left chest, side and back became more severe. Spine, kidneys, ureters, bladder, bony framework of the thorax, heart, mediastinum and costo-diaphragmatic angles were reported roentgenologically negative. The lungs contained tuberculous foci, some with calcification. Cough, expectoration, and the chest pain persisted through the winter months.

On April 5, 1924, thoracentesis produced 1,800 c. c. of bloody fluid. After that date it was done frequently to relieve the increasing left pleural effusion. On April 15, a hard, immovable mass was noted in the posterior left axillary line over the tenth and eleventh ribs. About May 1, the patient had a sense of something movable or moving in the left chest when he suddenly changed position. Chest pain and dyspnea

*Chairman's Address, Section on Pathology, Southern Medical Association, Twenty-Sixth Annual Meeting, Birmingham, Alabama, November 15-18, 1932.

†Professor of Pathology, University of Missouri School of Medicine.

Fig. 1, Case 1
Primary mesothelioma of left pleura; heart and right lung attached (inch scale).

were severe. Fluoroscopic examination on May 13 showed fluid in the left pleura and a non-pulsating tumor mass. On June 9, in the left lung from the apex to the eighth rib posteriorly, there were indistinct markings, and below this consolidation. During hospitalization the temperature varied from 99 to 103° F., pulse and respirations averaged 104 and 22, respectively. After the patient was discharged from the hospital on June 9 with a diagnosis of pulmonary tuberculosis and malignancy of the left lung, no records were kept. Death occurred on July 30.

Necropsy (By Dr. H. P. Muir, Columbia, Mo.).—The left side of the thorax was markedly expanded, barrel-shaped, and the intercostal spaces bulged. There was a dorsal scoliosis of 5 cm. to the right. At the posterior left axillary line and fixed to the ninth, tenth and eleventh ribs was a hard mass 5x8 cm. A tumor mass filled the left half of the thorax and concealed the left lung. Other findings were: a right hydrothorax, a hydropericardium, a hydroperitoneum, a small heart displaced to the right of the sternum, a hypertrophied liver with marked fatty changes, passive congestion of the liver, spleen and kidneys; an ancient callus of the left tenth rib posteriorly, partial atelectasis, vesicular emphysema, edema, bronchopneumonia, calcified tuberculous foci, and anthracosis of the right lung; caseous and calcified tuberculous areas in the right tracheobronchial lymph nodes, and tumor metastases in both left and right groups; partial compression stenosis of the trachea, right bronchus, and the great vessels, and collapse of the left bronchus.

Pathology of the Tumor.—Upon forcibly removing the tumor which was largely bound to or continuous with the parietal pleura, two gross areas remained attached to the thorax. One was directly within the thorax from the subcutaneous mass of the left posterior axilla. In the soft tissues of the left sixth to tenth intercostal spaces were areas of tumor tissue.

The tumor was firm, white to yellowish, and though somewhat nodular, was in general a diffuse mass that filled the left side of the thorax. It enveloped and compressed the left lung into an airless, grayish-black tissue. The two lobes were separated by tumor growth along the interlobar pleura. The tumor, with the enclosed left lung, the attached right lung and heart, weighed 7,600 grams. *Fig. 1* shows them as removed, and *Fig. 2,* the tumor after bisection.

The rather vascular neoplasm was made up of embryonic type endothelial (mesothelial) cells, spherical or polyhedral in shape, and closely cemented together, and to an abundant, moderately hyalinized connective tissue of cylinder-like appearance (*Fig. 3*). The transplant metastases revealed peripheral invasive characters.

The diagnosis was primary pleural mesothelioma, left, with metastases to the tracheobronchial lymph nodes and implantation metastases in the left intercostal tissues and left subcutaneous, subaxillary space.

COMMENT

The question of etiology is conspicuous in this case. What part had the pulmonary tuberculosis, the probable tuberculous pleuritis, the trauma with the fractured rib, and the incident damage to the pleura, to do with the production of this tumor and its rapid growth? The transplantation of cells along the tracts of the thoracentesis needle is one of significance, yet apparently unavoidable, so long as "tappings" or "needlings" must be done to aid in diagnosis and for the removal of effusions.

MEDIASTINAL LYMPHOSARCOMA

Lymphosarcoma has been defined as a malignant mesodermal, or an atypical connective tissue tumor, arising in lymphoid structures, with the presence of lymphoid cells in a delicate reticulum. They occur only in a chain or cluster of lymph nodes, as the cervical, mediastinal,

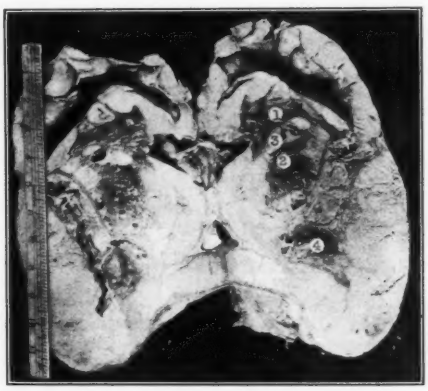

Fig. 2, Case 1
Primary pleural mesothelioma, left, sectioned. Lung completely encapsulated and compressed, upper and lower lobes (1 and 2) separated by interlobar growth (3), area of necrosis (4) (inch scale).

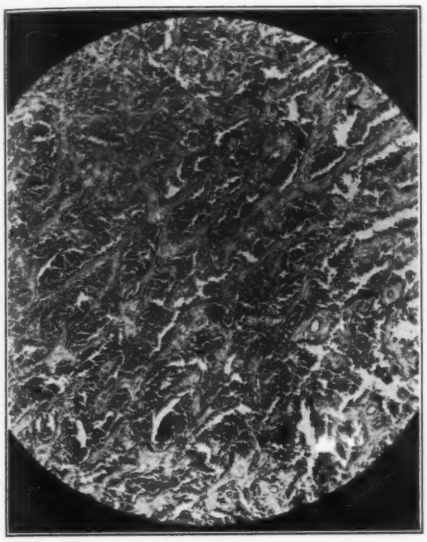

Fig. 3, Case 1
Primary pleural mesothelioma showing connective tissue stroma and hyalinization (X 80).

or mesenteric, or in localized lymphatic islands of tissue, as the intestinal mucosa.

The most frequent form of lymphosarcoma involves a distinct group of lymph nodes, and the mediastinal group is second in frequency only to the cervical chain as that primary place of origin. They are the most common of the strictly grouped mediastinal tumors. In a series of 60 such cases of malignant tumors which came to autopsy, Ross[3] found 10 carcinomas and 44 sarcomas, of which 32 were lymphosarcomas.

The origin of these mediastinal lymphosarcomas is not always so easily determined as in *Case 2*, where the thymus was free from the tumor and histologically normal. Ewing[4] states that most of the mediastinal lymphosarcomas arise from the thymus and are to be considered as varieties of thymoma.

Absolute diagnosis rests upon autopsy findings, but a definite presumptive diagnosis may be made by comparing x-ray and fluoroscopic examinations made prior to and repeated after therapeutic x-ray or radium treatments. This type of tumor responds to such treatment rather rapidly; hence on comparison, the post-treatment shadows are smaller.

Mediastinal primary lymphosarcomas usually reveal:

(1) Origin in the mediastinal group of lymph nodes, though they may be from the thymus.

(2) Invasion and penetration of lymph node capsule to the perinodal tissues as local extension.

(3) Early metastases to other lymph nodes and organs.

(4) Smooth surfaced or nodular, rapidly growing mediastinal neoplasms that cause respiratory embarrassment, vascular disturbances, passive congestion and edema of the face, neck, and so on.

(5) Rarity of degenerative changes.

(6) A distinctive histologic picture with definite cell types, either lymphoblastic or lymphocytic.

Case 2.—H. B., a white boy, aged 4, patient of Dr. J. Frank Harrison, Mexico, Missouri, had been born at full term without defect after an intra-uterine life of hazards. The mother became pregnant in August, 1919, menstruated continually through September; had a severe case of mumps in October, chloroform anesthesia for removal of teeth in November, operation on January 1, 1920, for an ovarian cyst which was found to be a pregnant uterus, influenza in February; but on April 15, a normal labor.

When seen first on February 15, 1924, the child had an unproductive cough, variable from moderate to severe dyspnea, an edema of the face, neck and lower extremities. The spleen and liver were palpable, but there was no subcutaneous adenopathy. Later, phlebectasia of the neck and chest became prominent and the edema involved the upper extremities. His temperature varied from normal to 101° F.

On March 1, when he was seen by Dr. T. Wistar White, of St. Louis, fluoroscopic examination revealed a dense tumor mass in the mediastinum that apparently involved the thymus. It extended anterior to the heart almost to the diaphragm, but the posterior mediastinum was not involved. X-ray showed a marked widening of the mediastinal space at its upper pole. The blood findings were: erythrocytes, 3,250,000; hemoglobin, 65 per cent; leucocytes, 691,000; with the presence of 38 per cent myelocytes. Death occurred March 24, 1924.

The clinical diagnosis was splenomyelogenous leukemia and a malignant tumor of the thymus.

Necropsy.—There were: edema of the tissues of the face, neck, feet and ankles, marked general anemia, palpable but small posterior cervical lymph nodes, petechial hemorrhages in the skin of the face, neck, chest and forearms, and the pleural and pericardial surfaces; pulmonary anthracosis, edema, bronchopneumonia, and hypertrophy, cloudy swelling and fatty changes in the liver. A tumor filled the anterior mediastinum from the inlet of the thorax almost to the diaphragm, covering anteriorly the pericardium and heart. The mass lay more to the right side of the midline anterior to the great vessels, the trachea and bronchi, though it partially surrounded the first portion of the aorta and the right bronchus. The thymus lay entirely above, as a separate, distinct tissue within its own capsule, appeared normal, and was nowhere attached to or connected with the tumor. Tracheobronchial and periaortic thoracic lymph nodes were much enlarged, fairly firm, and gray to pink in color, with islands of white. The mesenteric lymph nodes were similar, but were

Fig. 4, Case 2
Primary mediastinal lymphosarcoma, right lung attached (inch scale).

uniformly grayish-pink in color. The 800 gram spleen was firm, and while its cut surfaces were grayish-pink, they revealed irregular islands of softer gray tissue. The ribs and femurs showed patchy areas of mottled gray intermingled with the red marrow. Gross metastases were present in lungs, liver, tracheobronchial and peri-aortic lymph nodes.

Pathology of the Tumor.—The compact, firm, smooth surfaced mass of 10.5 cm. length from above downward, and 8.2 cm. transverse diameter, was of wedge shape, with a 5 cm. antero-posterior thickness at the upper pole and only a thin border below (*Fig. 4*). The posterior surface was attached to the parietal pericardium. Surfaces by section were uniformly grayish-white and glassy in appearance, except for a yellowish area of degeneration near the center.

The tumor and metastatic nodules in the lungs, tracheobronchial and peri-aortic lymph nodes, heart and liver were composed of small, non-granular, mononucleated, hyperchromatic round cells, lymphocytes (*Fig. 5*). The bones revealed many nucleated red cells and a myelocytic type marrow, with the myelocytes clustered. The spleen had focal areas of granular myelocytic cells and a marked loss of normal architecture. Blood films from the heart after death revealed a marked normoblastic and microcytic anemia and 38 per cent of myelocytes (neutrophilic, eosinophilic and basophilic).

The diagnosis was primary mediastinal lymphosarcoma, with metastases to the tracheobronchial and peri-aortic thoracic lymph nodes, lungs, heart and liver, and acute splenomyelogenous leukemia, with a marked secondary anemia.

COMMENT

Discussion here concerns the relationship of the mediastinal tumor and the myelogenous leukemia. Were the two lesions one and the same thing; did one represent a metaplasia of cells from the other; or were they separate and distinct entities? The blood findings and the lesions of the bones and spleen warrant the diagnosis of myelogenous leukemia. The growth and appearance of the mediastinal tumor was not that of a metastatic or secondary process, but that of a primary neoplasm conforming to the accepted definition of a lymphosarcoma. Histologically, it was such a tumor.

MALIGNANT THYMOMA

Thymomas are rather rare tumors that give a variety of types in an organ whose embryonic and histologic features are not agreed upon. Most observers consider the thymus an epithelial organ infiltrated by lymphocytes. Its primary tumors must of necessity arise from one or the other of these structures, the stroma, embryonal cell rests, or cell displacements. It is generally agreed that only two groups of malignant tumors, carcinomas and lymphosarcomas, may originate in this gland, though Ewing[5] adds a third type, spindle cell, or myxosarcoma, which he states is very rare and somewhat questionable. Many authors adhere to the general term "thymoma," coined by Grandhomme in 1900, to cover all malignant tumors primary in the thymus. There are instances, as in *Case 3*, a malignant thymoma of the carcinoma type, where one can and should be more specific. This differentiation is needed if the pathologist is to aid in determining type and extent of treatment, and to establish criteria for further studies.

There seems to be little doubt that these are true neoplasms, but Ewing[6] concluded "the great majority of thymus tumors, and especially the mixed growths, represent infectious granulomas, or particular forms of cell overgrowth

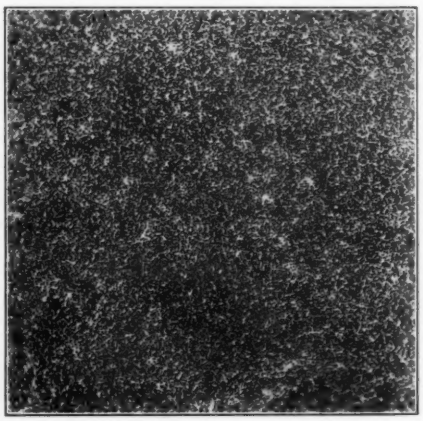

Fig. 5, Case 2
Primary mediastinal lymphosarcoma (X 90).

Fig 6, Case 3
Malignant thymoma of carcinoma type. Roentgenogram five days prior to death.

arising on the basis of an infectious granuloma." Crosby[7] states that there are 166 cases of malignant thymic tumors in the literature, 122 being sarcomas and 44 carcinomas. *Case 3* herein recorded makes 167 cases, and 45 are carcinomas.

The diagnosis of these tumors by x-ray and fluoroscopy, joined with clinical history and physical examination, is rather presumptively definite. Biopsy or autopsy are the only means of absolute diagnosis.

Malignant thymomas present:

(1) Origin in the upper anterior mediastinum in the thymus area.

(2) Rapidity of growth, with early development of pressure symptoms.

(3) Invasion of pleura, lungs and pericardium.

(4) Predominance of sarcomas, there being 122 sarcomas and 45 carcinomas (including *Case 3*).

(5) A wide variety of cell types and relations; some even give an appearance like Hodgkin's disease in lymph nodes.[6]

(6) A group complex of objective signs and subjective symptoms that strikingly point to a mediastinal malignancy.

(7) Little and temporary response, or none, to diagnostic radiation therapy.

Case 3.—N. H. T., a printing engraver, white, aged 25, was admitted to the University Hospital on the service of Dr. Dan G. Stine September 6, 1930, *in extremis*, and died 6 days later. His chief complaint was pain in the chest and shortness of breath.

In January, 1930, he had a tooth and dental cyst removed. In May he developed pain in the chest and dyspnea. His tonsils were removed in June. He had fever to around 100° F. in the afternoons for weeks. Early in August Dr. Bayard Holmes, of Chicago, by x-ray diagnosed a malignant mediastinal tumor. Following heavy x-ray therapy breathing became easier. Three weeks later, because of hemoptysis and an aggravation of symptoms, the radiation treatments were discontinued.

Roentgenological Report.—September 7 fluoroscopy showed that the left diaphragm was not visible, there was free fluid about the left base, and a large nonpulsating tumor mass which appeared to arise in the right mediastinum encroached upon the lungs and seemed localized to the anterior space (*Fig. 6*).

Signs and Symptoms.—During the 6 days prior to death there were: distressing dyspnea, labored breathing of the asthmatic type, chest pain, unproductive cough, profuse and practically constant diaphoresis, cold clammy skin, edema of the arms, cyanosis to marked pallor; extreme restlessness, a thin and thready pulse, and at times no left radial pulse. Dullness to flatness was found over both sides of chest, anteriorly and posteriorly. Thoracentesis, performed on 3 occasions with the removal of 1,800, 1,350 and 810 c. c. of sterile bloody fluid, gave only slight relief to the dyspnea and chest pain. His pulse rate varied from 112 to 144, respirations from 14 to 32, and temperature was subnormal except for one reading of 99.2° F.

The previous diagnosis of a malignant mediastinal tumor was sustained.

Necropsy.—There were: edema of the feet, ankles, left arm, forearm and hand, and of the soft tissues posterior to the base of the sternum; phlebectasia of the neck, thorax, upper pole of the abdomen, inferior vena

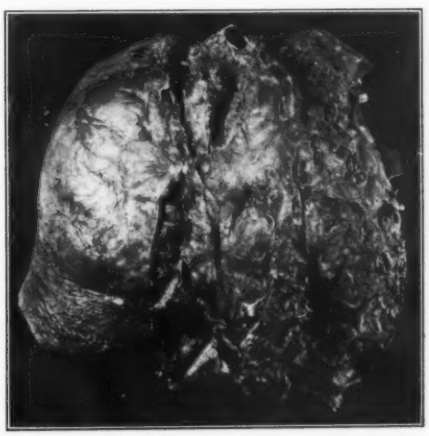

Fig. 7, Case 3
Malignant thymoma of carcinoma type, with lungs and mediastinal tissues removed en masse.

Fig. 8, Case 3
Malignant thymoma of carcinoma type, sagittal section. Distorted vascular channels and esophagus and massive collapse of lungs.

cava, hepatic and portal veins; marked passive congestion of liver, spleen, kidneys and lungs; and bilateral hemothorax. A soft tumor mass filled the mediastinum, concealed the pericardium and heart, and extended over the anterior and lateral surfaces of both lungs except for small areas near the apices and the lower third of the lower lobes. It occupied more than one-half the antero-posterior diameter of the mid-thoracic region, lay anterior to, and by pressure distorted, the trachea, aorta, esophagus and great vessels. The thymus as such could not be recognized. Both lungs were markedly compressed by tumor mass and pleural effusions. Secondary tumor nodules were present in the left visceral and parietal pleurae, and nodular masses were on the upper surface of the left dome of the diaphragm.

Pathology of the Neoplasm.—The lungs, heart and tumor were removed and fixed *en masse* (*Fig. 7*). The tumor was soft, pulpy, and of a dirty-grayish color. Transverse sections of the mass of vessels, heart, lungs and tumor across a plane at the junction of the upper and middle thirds revealed both lungs collapsed, compact, thin, and practically airless. The growth filled a cupped-out space in the right hilus region, and at this level occupied about three-fifths of the thoracic cavity, but was limited posteriorly by the parietal pericardium (*Fig. 8*). Cut surfaces revealed a diffuse, pink to grayish tissue containing streaks of yellow, and of brown to dark red color. Both lungs contained white nodules of 0.6 to 2 cm. size.

Coagulation necrosis was a conspicuous histologic feature. Around the margins of such areas were neutrophilic infiltrations, networks of engorged blood vessels and recent and ancient hemorrhage. The tumor was of embryonic type basophilic staining epithelial cells (*Fig. 9*). There was a tendency to gland formation and to cord-like rows of cells around a fairly well developed stroma. Ill-formed, whorl-like cell groups suggestive of Hassall's corpuscles and focal nests of lymphocytes were found.

The diagnosis was malignant thymoma of the carcinoma type with marked coagulation necrosis, areas of hemorrhage and secondary inflammatory reaction; extension to lungs and metastases to left pleura and supradiaphragmatic lymph nodes.

COMMENT

History, physical examination, roentgenological studies, course and symptoms, here yield the full picture of a malignant mediastinal tumor that was rapid in growth, invasive in character, and not responsive to x-ray therapy. The most distressing symptoms were those of air hunger, chest pain, and an unproductive cough. Labored breathing, anxious facies, edema of left upper extremity, profuse and constant diaphoresis, coldness of distal parts, cyanosis, and phlebectasia of the neck, thorax and upper extremities were conspicuous findings.

PRIMARY LUNG CARCINOMA

Primary carcinomas of the lung present a very different problem from the previously discussed types. Occupation appears as an important etiologic factor. At the Schneeberg mines in Saxony during a 3¼ year period,[8] there were 21 deaths among the miners, and by autopsy, 13, or 62 per cent, were found to have pulmonary

Fig. 9, Case 3
Malignant thymoma of carcinoma type with margin of atelectatic lung (X 80).

cancer. On the Bohemian side of the Erz Mountains at Jachymov, about 18 miles from Schneeberg, a more recent study[9] made upon 17 deceased miners revealed that 9, or 53 per cent, had cancer of the lungs.

At the Schneeberg and Jachymov mines the same chemical elements are found, namely: cobalt, radium, silver, nickel, bismuth, arsenic and uranium, while the waters and air of both mines are radio-active.[9] There is a question as to whether the lung cancers are produced by the radium emanations inhaled, or otherwise entering the body; the arsenic, one of the other chemicals, or whether it is secondary to the pneumonoconiosis. In the Schneeberg group, pneumonoconiosis was a conspicuous finding, but not so at Jachymov.

Many other factors have been discussed and possibly some play a role in the cause of the disease, namely: chronic bronchitis, influenza, chronic interstitial pneumonia, chemical pneumonia, syphilis, tar, or dust from roads; trauma, and tuberculosis. Ewing[10] believes tuberculosis the chief etiological factor. Statistics show men affected three times as often as women. Boyd[11] experienced 14 cases in his autopsy material without one being a female.

Ewing[12] believes primary malignant tumors of the lung form about 1 per cent of all cancers. In autopsies on 2,209 persons over 30 years of age, Rogers[13] reported 50 cases, or 2.26 per cent, with primary cancer of the lung, of which 48 were primary bronchial carcinomas and 2 alveolar carcinomas. Fishberg,[14] in 36 cases of primary pulmonary malignancies, found that 35 were carcinomas and 1 a sarcoma. Davison and Horwitz,[15] in analyzing 61 cases, found 57 of bronchial origin, 2 squamous cell carcinomas, 1 alveolar carcinoma, and an endothelioma. Weller,[16] from personal experience, and after a survey of 233 articles from 221 authors listed in his bibliography, states:

"The type of carcinoma that occurs in the hilum, comprising perhaps 90 per cent of all cases of carcinoma of the lung, is practically always bronchiogenic."

The first consideration in differential diagnosis is pulmonary tuberculosis, and here the patient's age is important. In those over 50 years of age with cough, pain in the chest, dyspnea and bloody sputum, cancer of the lung should be the first thought. In adulthood, tuberculous lesions tend to be apical, while malignant tumors are predominantly hilus. The presence of tubercle bacilli indicates tuberculosis, but does not eliminate the possibility of a tumor, for both have been found in the same lung. One must further differentiate the primary lung tumors especially from: metastatic pulmonary lesions, aneurysms, reactions to foreign body, pulmonary abscesses, gangrene, and particularly from Vincent's spirochetal infections.

The most distinctive features of primary pulmonary carcinomas appear to be:

(1) Etiology dominated by four factors: age, occupation, sex, and chronic irritation, as pneumonoconiosis or other chronic inflammation.

(2) Ninety to 95 per cent are hilus growths and of bronchiogenic origin.

(3) The alveolar type constitutes about 4 per cent, is commonly diffuse, and usually undergoes necrosis or cavitation.

(4) There is rapid invasion and they are ultimately fatal.

(5) There is metastasis to the lymph nodes, opposite lung and other tissues, but particularly to the brain.

(6) The metastatic foci often shadow or cause more marked symptoms than the primary growth.

(7) A protean group of symptoms and manifestations, presenting diagnostic difficulties, often solved only by teamwork between clinician, roentgenologist, bronchoscopist and pathologist.

The armamentarium for diagnosis includes clinical history, searching physical examination, bronchoscopic examination, lipiodol injections with roentgenologic studies to show filling defects and stenosis, diagnostic pneumothorax,[2] histologic examination of biopsy tissue from primary growth, involved lymph nodes, or pieces of coughed up tissue.

Case 4.—E. G., a white woman, aged 60, patient of Dr. A. W. Kampschmidt, Columbia, Missouri, after June, 1928, had frequent attacks of headache, nausea and vomiting (migraine?). March 1, 1929, she had an attack of aphasia, could not maintain coherent conversation, and was unable to write, though there was no paralysis, and at the end of 2 months recovery was complete. In August there was a hesitant speech, with an inability to find words, a moderate microcytic hypochromic anemia, a harsh systolic mitral and a soft diastolic aortic murmur, and a blood pressure of 120/75. Neuritis of the right shoulder and neck, spastic contraction of the left shoulder muscles, basal headache, pain in the back, and mental disturbances were the chief complaints during the last weeks of life. There were no symptoms pointing to pulmonary disease until a terminal pulmonary edema caused dyspnea and cough. Roentgenological examinations were not made. Death occurred September 20, 1929.

Necropsy.—There were: equal pupils, bilateral anthracosis and calcified healed tuberculous lesions of tracheobronchial lymph nodes, and a right chronic ob-

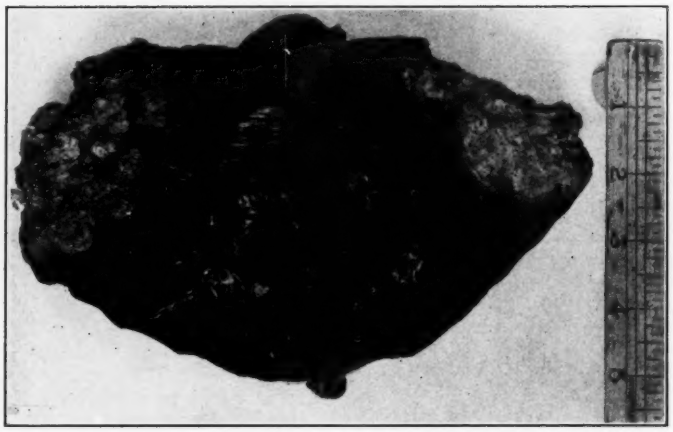

Fig. 10, Case 4
Primary alveolar lung carcinoma, sectioned. More than half the tumor was left adherent to the chest wall (inch scale).

literative pleuritis, insufficiency of the aortic valve from fibrosis and calcification of the leaflets, marked arteriosclerosis of the aorta, iliac, vertebral and right middle cerebral arteries, marked chronic interstitial nephritis, passive congestion of the lungs, spleen and liver, calcified tuberculous foci in the left lung, purulent bronchitis in the right lung, and a tumor mass involving the two upper lobes; metastases in the right tracheobronchial lymph nodes, and 8 metastatic nodules with areas of necrosis in the brain, 3 being in the cerebellum.

Pathology of the Neoplasm.—The right upper lobe and slightly more than the upper half of the middle lobe were replaced by a tumor of torn, necrotic, grayish, friable, soft structure, bathed in thick, cheesy to puriform material (*Fig. 10*).

Primary growth and metastatic foci were alike as to cell type, arrangement, and degenerative changes. They were made up of scant stroma and flat to polyhedral, large embryonic type epithelial cells having a hyperabundance of dark staining chromatic nuclear material (*Fig. 11*). Necrosis was present in areas, near which neutrophilic infiltration was marked.

The diagnosis was primary alveolar lung carcinoma, with metastasis to the tracheobronchial lymph nodes and multiple metastases to the brain.

COMMENT

This patient was seen during a relatively long survival period by several physicians, and at no time was there obtained a direct symptom or finding that indicated a pulmonary lesion. The cerebral metastases caused a group of conspicuous and pointing symptoms that were attributed to cerebral hemorrhage, thrombosis or embolism. Necrosis in the brain metastases, necrosis, and secondary infection of the primary pulmonary growth were conspicuous features.

Case 5.—H. B. H., a white man, aged 72, patient of Dr. Conley H. Sanford, Memphis, Tennessee, came under observation December 11, 1931, complaining of cough with bloody sputum for 5 weeks. Neither pain, fever, nor loss of weight had been noted at that time, though all three, with marked loss of strength, developed prior to his death on August 29, 1932.

December 11, 1931, harsh breath sounds were found over the left upper lobe and sticky rales below the angle of the scapula. The x-ray revealed small areas of increased density in both lungs. Other laboratory findings were either negative or normal. February 10, 1932, for several days he had pain along the left costal margin. Cough, at times harassing, bloody sputum, and the sticky rales of the left lung persisted. X-ray showed an area of consolidation of several centimeters in diameter in the left lower lobe, and several weeks later, partial collapse and bronchostenosis were recognized. The apex of the heart was displaced to the left.

The clinical diagnosis was carcinoma of the left lung.

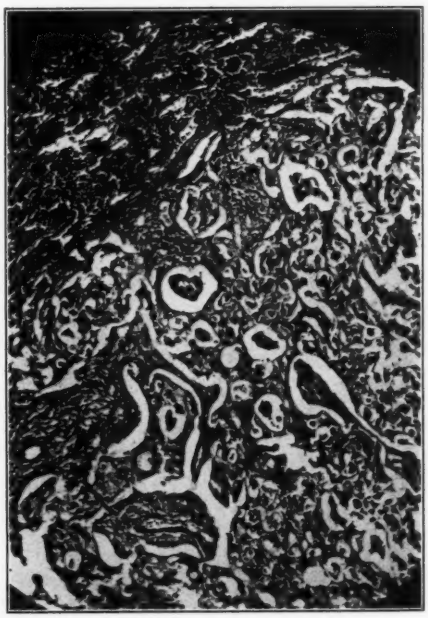

Fig. 11, Case 4
Primary alveolar lung carcinoma (X 90).

Fig. 12, Case 5

Primary bronchiogenic carcinoma of lung. Growth within and around bronchus, occlusion of lumen except for a microscopic slit and collapse of cartilaginous ring (X 15).

Necropsy (by Dr. R. M. Moore).*—There were: marked generalized arteriosclerosis, including the aorta, coronary, renal and cerebral arteries, left hydrothorax, brown atrophy of the liver, and chronic arteriosclerotic nephritis. The lower lobe of the left lung was of wedge shape, collapsed to 7.5 cm. long, with an average thickness of 3 cm. It was firm, airless, of brownish-black color. Beneath the scarred and heavily wrinkled pleura were firm nodules up to 8 mm. in diameter. One of 1.5 cm. diameter was situated at the apex, fused with a bronchus.

The lungs revealed atelectasis (in left), bronchiectasis, emphysema, bronchopneumonia, and firm, white isolated 2 to 4 mm. foci, histologically found to be fibrosed areas like healed tuberculosis. There were metastases in the upper lobe of the left lung, throughout the right lung, tracheobronchial and mediastinal lymph nodes, and two in the brain; one 6 mm. in size in the center of the left parietal lobe on a level with the internal capsule, and the other, 1.2 cm., under the upper surface of the left frontal lobe.

Pathology of the Neoplasm.—The primary tumor, at the apex of the lower lobe of the left lung, was a thick area of grayish-white, firm tissue involving the bronchus. It gave the gross appearance of a tuberculous lesion of the peribronchial lymphatics. Histologic sections made from a bronchial branch further down showed the lumen partly filled by the growth. The lumen was further stenosed by the partial collapse of the bronchial wall, as evidenced by the overlapping of the cartilaginous rings (*Fig. 12*). Outside the ring of cartilage the tumor growth was greater in degree. Tumor cells and thrombotic nests of them in the peribronchial lymphatics led to much thickening of the bronchial walls. Some bronchi appeared as solid white cords, though in histologic preparations there were microscopic lumina lined by cylindrical epithelium.

The primary growth of cylindrical cells arose from the bronchial lining epithelium, and grew outward through the basement membrane of the mucosa (*Fig. 13*). In places the large and embryonic appearing cells were much distorted. Mitotic cells were numerous. The secondary pulmonary nodules were largely near the pleural surfaces of both organs. Cells were noted breaking through the walls of some alveoli to the visceral layer of the pleura. Pneumonoconiosis, also pigmentation and fibrosis of tracheobronchial lymph nodes, were extreme (*Fig. 14*).

The diagnosis was primary bronchiogenic pulmonary carcinoma, left, with multiple metastases to other lung tissue, tracheobronchial lymph nodes, and brain.

COMMENT

In this case, which was diagnosed clinically, the more or less classic features of the bronchiogenic carcinoma were present. Slowly developing pulmonary symptoms, with chest pain, cough, bloody sputum and pleural effusion in a patient aged 72 require that pulmonary malig-

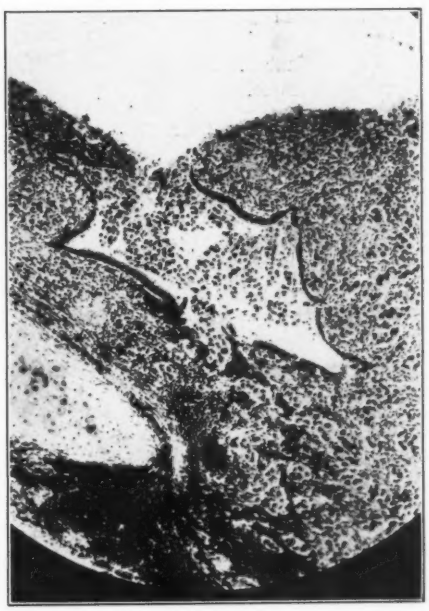

Fig. 13, Case 5

Primary bronchiogenic carcinoma of lung. Growth in the lumen of a bronchus, breaking through the lining mucosa, and infiltration of the wall (X 90).

*Assistant to the author as Acting Director of the Pathological Institute, University of Tennessee College of Medicine, Memphis, Summer Quarter, 1932.

Fig. 14, Case 5
Primary bronchiogenic carcinoma of lung. Extreme anthracosis and fibrosis around islands of tumor cells in a tracheobronchial lymph node (X 90).

nancy be eliminated. No symptoms heralded the brain metastases.

SUMMARY

Five cases of primary intrathoracic malignant tumors of very distinctive anatomic and histologic types are reported. Discussion of the tumors, their prevalence, types, classification and special features precedes each case report. Attention is called to the problems of diagnosis and differential diagnosis.

REFERENCES

1. Sprunt, T. P.: Primary Carcinoma of the Pleura. Johns Hopkins Hosp. Bull., 22:289-293, 1911.
2. Fishberg, Maurice: Discernment of Intrathoracic Neoplasms by Aid of Diagnostic Pneumothorax. J.A.M.A., 76:581-582, 1921.
3. Ross, J. N. MacB.: Some Observations Upon Primary New Growths of the Mediastinum from a Study of Sixty Cases. Edinburgh Med. Jour., 13:444-455, 1914.
4. Ewing, James E.: Neoplastic Diseases, 3rd Ed., p. 416. Wm. B. Saunders Co., Philadelphia, 1928.
5. Ewing: Ibid, p. 971.
6. Ewing: Ibid, p. 976.
7. Crosby, Edward H.: Malignant Tumors of the Thymus Gland. Amer. Jour. Cancer, 16:461-486, May, 1932.
8. Thiele, Rostoski, Saupe and Schmorl: Ueber den Schneebergen Lungenkrebs, Munchener Medizinische Wochenschrift, 71:24-25, 1924.
9. Pirchan, A.; and Sikl, H.: Cancer of the Lung in the Miners of Jachymov (Joachimstal). Amer. Jour. Cancer, 16:681-722, July, 1932.
10. Ewing: Ibid, p. 852.
11. Boyd, William: Pathology of Primary Carcinoma of the Lung. Canadian Med. Ass'n. Jour., 23:210-217, 1930.
12. Ewing: Ibid, p. 851.
13. Rogers, W. L.: Primary Cancer of the Lung: A Clinical and Pathological Survey of 50 Cases. Arch. Int. Med., 49: 1058-1077, June, 1932.
14. Fishberg, Maurice: Diagnosis of Pulmonary Neoplasm. Arch. Int. Med., 37:745-772, 1926.
15. Davison, Charles; and Horwitz, Wm. A.: Primary Carcinoma of the Lungs with Metastases to the Central Nervous System. Arch. Int. Med., 46:680-704, 1930.
16. Weller, Carl V.: The Pathology of Primary Carcinoma of the Lung. Arch. Path., 7:478-519, 1929.

NON-OPERATIVE VERSUS OPERATIVE TREATMENT OF TUBERCULOSIS OF THE SPINE IN CHILDREN*

A REVIEW OF 50 CONSECUTIVE CASES TREATED BY EACH METHOD

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The merits of the non-operative and operative treatment of tuberculosis of bones and joints cannot be accurately determined from a study of the conflicting statements in the literature. The same is true for tuberculosis of the spine. For the last twenty years many of the best authorities on both tuberculosis and orthopedics have disagreed upon whether or not tuberculosis of the spine should be treated with or without surgical fusion.

The literature on the subject is voluminous. Many of the Continental physicians (Rollier,[1] Calvé,[2] Galeazzi[3]), are unconditionally opposed to operative fusion of the spine. Others (Estor,[4] Courboules,[5] Girdlestone,[6] Wheeler[7]) admit the value of fusion in adults, but are opposed to ankylosing operations in children. Many of the American surgeons (Bradford,[8] Kidner,[9] Baer[10]) are satisfied with non-operative treatment and oppose operative treatment. Others (Henderson,[11 12] Meyerding,[13] Sisler[14]) favor operative fusion in adults, but avoid it in children. There are still others (Hibbs,[15 16] Albee,[17 18 19] Rugh,[20 21]) who have produced absolute proof of the value of operative treatment, not only in adults, but also in children.

The Committee of the American Orthopedic Association,[22] reporting in 1920 on the value of ankylosing operations upon the spine, came to the conclusion that ankylosing operations cannot be depended upon to prevent increase of destruction or deformity; that supportive treatment must be maintained almost as long with operation as without it, and that the mortality rate is higher among children. Only 18 out of 96 cases showed fusion of the bodies of the diseased vertebrae.

Kidner and Muro,[9] seeking for an answer to this question, selected seven pairs of children, and operated

*Read in Section on Bone and Joint Surgery, Southern Medical Association, Twenty-Sixth Annual Meeting, Birmingham, Alabama, November 15-18, 1932.

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upon one of each pair and treated the other without operation. Reporting their conclusion from 6 to 18 months later, they state that "cases in which fusion has been done require practically as long and careful after-treatment as those without operation. The possible shortening of convalescence does not justify the very real risk incident to operation. The unoperated cases when cured have more flexible spines than the operated ones."

Stone[23] made a similar study of 65 cases and concluded that ankylosing operations for tuberculosis of the spine in children should not be recommended.

There is so much disagreement and confusion in the literature that it is almost impossible properly to evaluate the conflicting statements and decide upon the merits of the two methods. We can all recall from our own practices good and bad results following both of these procedures. While it is instructive and encouraging to read of the wonderful cures obtained in the Swiss Alps by Rollier with heliotherapy, and the excellent results obtained in New York by Hibbs with his masterful surgery, the important question for each of us to decide is which method is better for us in our own particular climate and with our individual operative ability.

In order to answer this question for myself and to determine upon a more definite procedure for treatment of future cases, this study was undertaken. Omitting about a dozen early records which contained meager data of brief treatments, all the remaining cases of tuberculosis of the spine treated at the Scottish Rite Hospital for Crippled Children have been reviewed. These included 50 cases treated by each method. All were under 14 years of age on admission and all came from and returned to the most destitute homes of Georgia.

With a few exceptions the children in the two groups offered the same prognosis on admission. These exceptions were a few children in such a poor general condition that operative treatment could not be considered. However, a number of these improved and were later successfully fused.

The two methods have been used simultaneously in the above institution for the past 17 years. This was done chiefly because of the uncertainty as to the better method of treatment. In some cases the parents objected to operative treatment. In other cases after a long period of non-operative treatment without demonstrable improvement, operative treatment was tried. The operative group received practically the same treatment before and after operation as the non-operative group. The operation was only an incident in the course of treatment. All were kept in bed on a frame, or in a posterior shell, or in a plaster jacket. They were given daily heliotherapy during the summer and mercury-quartz light during the winter. They lived on open porches and received plenty of good food and tonics as indicated.

Absolute immobilization is the most important prerequisite in the treatment of any tuberculous lesion. Simply resting in bed on a frame, or in a plaster shell or jacket, or in a brace falls far short of this desideratum. No matter how accurately the mechanical contrivance is applied the child is able to twist and squirm about so that there is a certain amount of motion in the spine. The patient cannot even turn its head without some compensatory motion in other portions of the spine. There is a small but constant motion in the thoracic spine with each respiration. If, during operation when the intervertebral articulations are exposed, the child should move on the table or vomit, the operator is usually surprised at the amount of motion that takes place between the vertebrae. Mechanical support cannot be depended upon to give absolute immobilization. This can be obtained only by spine fusion.

In a month or two after operative fusion the posterior surfaces of the vertebrae become one solid mass of bone. It is only after this has occurred that the spine is given the absolute immobilization that is essential to assist nature in the healing of the tuberculous process. A study of the roentgenograms following adequate fusions show that in about half of the cases there was a decrease in the amount of calcification and a decrease in the bony detail during the first six months, while in the other half there was no change. Beginning about six months after operation there was a gradual increase in the amount of calcification and in bony detail in all the cases. Later roentgenograms show a filling in of bone in the diseased bodies, with a reshaping of the body and a reformation of the intervertebral disc where the bodies were only partially destroyed. In the areas where the bodies were completely destroyed there has developed a solid bony ankylosis of the entire diseased area (*Fig. 1*). Fusion of the diseased bodies occurs in from two to five years after operation with an average of about three years.

A study was made of the acuteness of the angle of the kyphosis by measuring in degrees with a protractor the angle formed by the anterior borders of the vertebrae in the lateral roentgenograms. There was at times a slight increase in the amount of the deformity during treatment by recumbency. By the use of traction

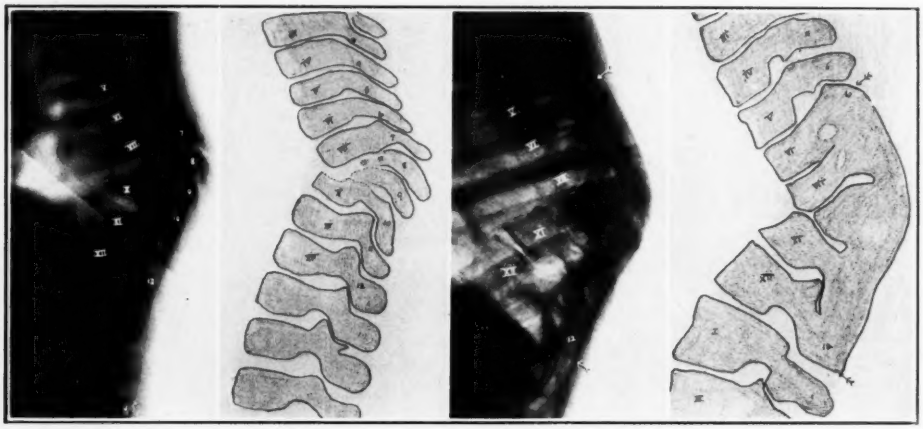


Fig. 1

Lateral roentgenogram of a three-year-old girl on admission. There is a complete destruction of the vertebral bodies of the eighth and ninth thoracic vertebrae and a destruction of the proximal half of the tenth. Notice the hazy, indefinite outline of the bones. The second roentgenogram was made seven years after operative fusion. Notice the increase in bony detail and the sharpness of the outline of the bones. The diseased area has fused and is as dense as the bodies of the normal vertebrae. The intervertebral disks between the seventh vertebral body and the diseased area and between the diseased area and the eleventh body have been preserved. The solid bony bridge resulting from the operative fusion on the posterior surface of the vertebrae can be seen extending from the sixth to the twelfth thoracic vertebrae, fusing two vertebrae above and below the diseased area.

jackets the deformity has been lessened in many cases. There was a rapid increase in deformity whenever ambulatory treatment was allowed, even though a brace was worn. Following operation there was also a slight increase in the amount of deformity when ambulatory treatment was again begun. This increase in deformity gradually continued until the roentgenograms showed a solid bony fusion of the diseased bodies. After this there was no appreciable increase in the deformity.

Operative fusion will not correct deformity, as was first claimed for it.[17] For this reason the deformity should be corrected as much as possible before operation. The operation should be followed by a long period of rest in recumbency. When ambulatory treatment is allowed the spine should be carefully protected by jackets and braces. Neither should operation be done with the idea of greatly shortening the treatment. Operative fusion is done solely to cure the disease, and this it will do if an adequate operation is done and adequate postoperative treatment given.

In evaluating the results in the operative group it is necessary to divide the cases into two classes: those having adequate and those having inadequate operations. This has not been done in previous reports. It has been assumed that all operations were adequate operations. An inadequate operation on the spine will fail to accomplish the desired results just as an inadequate operation will fail in other parts of the body. If there is a recurrence after a repair of a hernia we do not condemn operative treatment of hernia and advocate mechanical support but immediately assume that an inadequate operation has been done. It is but fair to use the same standard in deciding upon the merits of the spine fusion operation.

After spine fusion we can judge accurately whether or not an adequate operation has been done by studying the lateral roentgenograms. If grafts have been used, the length of the fused area can be determined at once. After the Hibbs operation the extent of the fusion can be determined in a few months by the formation of new bone and by the positions of the spinous processes. If there is a break in the graft over the kyphosis, or if the fusion does not include the spinous processes of two normal vertebrae above and two below the diseased vertebrae, it is an inadequate operation.

In the operative group the roentgenograms were available for study in 45 cases. These showed that an adequate operation had been done in only 34 cases. In these cases there was either a beginning of definite bony fusion of the diseased bodies in the more recent cases to a firm bony ankylosis of the diseased bodies in the older cases. From this study I believe that we are correct in saying that if there is not a

firm bony fusion of the diseased bodies after three years, an inadequate operation has been done.

A spine fusion is not an operation to be undertaken lightly. Tuberculous children do not stand major operations as well as healthy children. In addition to the immediate risk from surgical shock, there is the added hazard of a later flare up of tuberculosis elsewhere in the body if the patient's resistance has been lowered by a very shocking operation. The roentgenograms of the chest in practically all children with bone and joint tuberculosis show the childhood type of tuberculosis. Of the 38 earlier patients in this series who had ether anesthesia, 4 developed an active pulmonary tuberculosis following operation. They all recovered, however. The shock is also increased by each additional vertebra fused. The recognition and fear of this added shock is probably responsible for the 30 per cent of inadequate operations in this series, as most of these inadequate operations show that the fused area was too short.

In order to reduce shock to the minimum, it has been my practice, for the past three years, to do all cases having more than two diseased vertebrae in two stages. If the spinous processes of two normal vertebrae are included on each side, this makes six vertebrae to be fused, which is about as much as should be done at one time. If it is necessary to do more, as is usually the case, the operation is done in two stages, with two or three months' interval between the operations.

In order further to lessen the shock, it has been my practice, for the last three years, to do all operative fusions under local anesthesia. If the incision is kept in the midline, the epinephrine in the novocain solution renders the operative field almost bloodless. This not only saves time, but prevents shock from the loss of blood. The Hibbs operation is used. The thorough removal of all tissue from between the laminae, which is essential, and the careful curettement of the intervertebral articulations can be done deliberately and thoroughly, as the operator does not have to hurry to shorten the duration of a general anesthetic.

After operation there is not the dehydration that follows an inhalation anesthetic and there is seldom any vomiting. The patient is able to take fluids immediately, and continues to do so. None of these cases has shown any signs of acidosis. A child of two to three will usually come off the table with a pulse of 120 to 140, which will soon come down to 120 or less. There is seldom a rise of temperature above 100 or 101°. When only half of the area has been fused under local anesthesia the postoperative convalescence is so smooth that one can scarcely tell that the child has undergone an operation. Fusion of the total area under general anesthesia produces quite a different reaction. The pulse remains around 160 for a few days, there is much nausea and vomiting and hypodermoclysis is often necessary. After weathering this more violent storm, the patient's general condition during the following months is not so good as it was before the operation.

I have done 20 fusions under local anesthesia, fusing children from two to thirteen, most of whom have been between two and five. The children have all cooperated nicely and have complained very little of pain. They have invariably complained more, later, during the removal of the sutures than they did during the operation. In only one case was it necessary to supplement the local anesthesia with gas-oxygen.

RESULTS IN THE NON-OPERATIVE GROUP

This group has been followed from one to thirteen years, averaging about six years. Ten of the 50 patients were not treated over a sufficient period to justify their inclusion in the tabulation. Most of these were removed from the hospital by the parents against our advice a few weeks after admission. Because of limited space, only a few case reports, which are typical of each group of results, will be given.

Excellent results were obtained in 1 case, or 2.5 per cent.

Case 2557.—A two-year old boy with tuberculous involvement of the third and fourth lumbar vertebrae was kept on a frame in the hospital for three months and allowed to go home on a frame. During this time he developed a tuberculous cervical adenitis and a tuberculous ear. After keeping him on the frame at home for four months the parents let him up without any form of spinal support. After he had been up four months, examination showed as much stiffness of the spine as we see after operative spine fusions. Lateral roentgenograms showed that two more vertebrae were diseased, but that definite fusion was taking place between the diseased bodies. *Fig. 2* shows a roentgenogram on admission and another six years later. The diseased bodies are firmly fused. The child is free from symptoms and is in an excellent condition.

This is an ideal result, and is nature's method of curing tuberculosis of the spine. Spontaneous fusion of the diseased vertebral bodies occurred only twice in 100 cases. (The other case was in the operative group and was cured, even though an inadequate operation was done.) It has been recommended that operative fusion

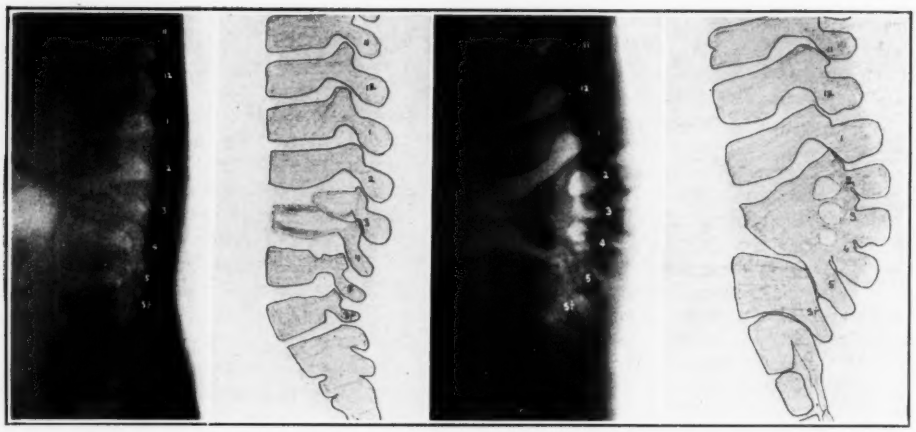


Fig. 2

Lateral roentgenogram of a two-year-old boy. There is a complete destruction of the body of the third lumbar vertebrae and a partial destruction of the fourth. The bodies of the second and fifth show no evidence of disease. This patient had very inadequate conservative treatment, yet had a spontaneous fusion of the bodies. The second roentgenogram, made 6½ years after discontinuing treatment, shows that the second and fifth bodies later became diseased and were destroyed, but that all four have firmly ankylosed. From the density of the bone and the sharpness of the outline, the disease has healed. Spontaneous fusion is nature's method of curing the disease, and this occurred twice in 100 cases.

should be dispensed with in children, as they may fuse spontaneously. Are we justified in waiting for a 2 per cent chance of cure when we have an approximate 100 per cent chance of cure?

Satisfactory results were obtained in 7 cases, or 17.5 per cent.

The seven children in this group cannot be classified as "good," but only as "satisfactory." They seldom have pain in their backs. They can enjoy a fairly active life, but are not able to take part in athletics or to do heavy physical work.

Case 828.—A six-year-old boy had had a kyphosis (T1-T9) for five years. He was paralyzed at one time, but the paralysis disappeared with rest in bed at home. He was admitted to the hospital, given a long rest and upbuilding treatment and allowed to go home on a frame. After four admissions with intervals of treatment at home he was allowed ambulatory treatment, wearing a brace. He lost the sight in his right eye when he was about a year old. Microscopic examination of the eye after removal showed tuberculosis. He has been kept under observation 11½ years. The kyphosis has gradually become more prominent and the roentgenograms show more destruction of the vertebral bodies. He says that he has no pain in his back unless he "overdoes." He is able to sell papers on the streets of Atlanta.

Case 2589.—Kyphosis developed at 1½ years. A brace was applied at five and worn three years. She was admitted at eight (T-T9), with paralysis of both legs. This disappeared in 8 weeks with rest on a frame and head and pelvic traction. Later, the child was allowed to go home in a jacket. Paralysis recurred. After six weeks' traction and frame treatment the paralysis gradually disappeared. After 642 days in the hospital the patient was allowed to go home wearing a brace. She has worn the brace for five years and is still wearing it. There has been a gradual increase in the size of the kyphosis. When she tries to go without her brace she soon becomes tired and complains of pain in her back.

Case 2747.—Six years after completion of treatment, a letter was received from the patient's father saying: "He is still getting along very well. He is not able to do any heavy work. He can carry water to the field and do piddling around the house."

Case 3284.—A six-year-old boy had a kyphosis (T4-T9) for 3½ years. After 26 weeks on a frame, a brace was applied and ambulatory treatment given. One year later he was brought back because he was completely paralyzed. He had a return of function five months after a unilateral laminectomy. He spent 361 days in the hospital. He has worn a brace for four years and is still wearing it. He complains of his back when he tries to leave his brace off, but has no trouble as long as he wears it.

Case 3172.—A six-year-old boy whose father died of tuberculosis injured his back at the age of four and a kyphos developed. A brace was applied and worn for two years. He had a discharging sinus near the kyphos (T8-L2) on admission. He was treated with rest on a frame, head and pelvis traction and jackets, with intervals of treatment at home. He was admitted to the hospital seven times and spent 673 days in the hospital. He developed a psoas abscess, which ruptured spontaneously. When last seen he had been wearing a brace for three years. He had a heavy coat of tan. He had three discharging sinuses. He was going to school, but could take no part in the sports.

Fourteen cases, or 35 per cent, were improved.

These were helped by their long stay in the hospital and showed a definite improvement on dismissal, but most of these are on the invalid list and cannot be classed as satisfactory.

Eleven cases, or 27.5 per cent, were unimproved.

Case 1034.—A five-year-old girl developed a dorsal kyphosis at the age of one. After four admissions with intervals of treatment at home, and 8½ months in the hospital, she was allowed up with a brace. She has worn a brace continuously for six years and is still wearing it. Examination now shows that the kyphosis (T4-L2) has increased in size, and that she has developed a tuberculosis of the hip on the right, with several discharging sinuses. She is unable to walk and is in a very bad physical condition.

Case 1055.—The patient developed a kyphosis (T1-T5) at 1½ years. He was admitted at the age of two. After 4 admissions and 406 days in the hospital, and five years in braces, the child is still unimproved and is scarcely able to walk. He is now in a tuberculous hospital, receiving treatment for active pulmonary tuberculosis.

Case 1286.—A 1½-year-old girl developed a kyphosis (L1-L2) at the age of one. After six months in the hospital a brace was applied. The patient got along nicely for a while and went to school for your years. She then developed tuberculosis in the right knee, which discharged spontaneously. The mother writes ten years after dismissal that the child is unable to walk and is too ill to be brought back for re-examination.

Case 2497.—Seven years after dismissal the doctor says that the patient has an active pulmonary tuberculosis and has only a few months to live.

Case 3240.—A five-year-old boy developed a kyphosis (T9-T10) at the age of three. He was kept on a frame in the hospital and at home under good conditions, and was brought back for observation at three-month intervals for three years. The mother gave excellent cooperation. The patient had a heavy coat of tan throughout eight months of the year. After three years in recumbency a well fitting brace was applied and ambulatory treatment allowed. He has worn the brace constantly for the last two years. He has an abscess under the skin of the back near the kyphosis, which has not ruptured. The kyphosis has grown larger (T5-L1). His general condition is poor and he cannot walk the distance of a city block without "giving out."*

Death ocurred in 7 cases, or 17.5 per cent.

These can be given more briefly as a summary than as individual case reports. There were 6 males and 1 female. Five died in the hospital of tuberculous meningitis and 2 died at home of tuberculosis. The exact cause could not be ascertained.

The time between the onset of the tuberculosis and death varied from one to 19 years. Only one patient in this group had had an anesthetic and this was for tonsillectomy. None of these patients had discharging sinuses. Those dying of meningitis were all in good general condition until the first symptom of the meningitis. Four of these children had roentgenograms of the chest. One showed the childhood type of tuberculosis, one a more advanced type, one tuberculosis pleurisy, and one miliary tuberculosis. The diseased areas were: C5-T9, C7, T8-T10, T1-T4, T2-T10, T9-T10, and T3-T8.

*Since this paper was written the patient has been brought back to the hospital with a bilateral paralysis.

OPERATIVE GROUP

The patients in this group have been followed from one to fifteen years. Thirty-six of these patients have been followed on the average of 8.6 years, most of them returning yearly for observation. There were 9 Albee operations, 21 modified Albee with bone shavings from the tibia instead of a massive graft, 20 Hibbs, and 9 modified Hibbs, making 59 operations upon 50 patients. Nine patients were fused in two stages. The operations were done by five different operators, only a third of the operations being done

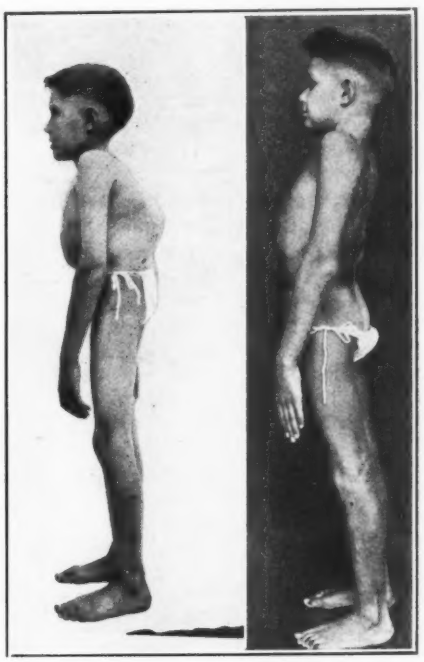


Fig. 3 Fig. 5

Fig. 3.—L. B., a 12-year-old boy who developed a kyphosis at the age of two. A brace has been worn for six years.

Fig. 5.—The same patient one year later, after correction of the deformity by traction jackets. This photograph was made just before operation.

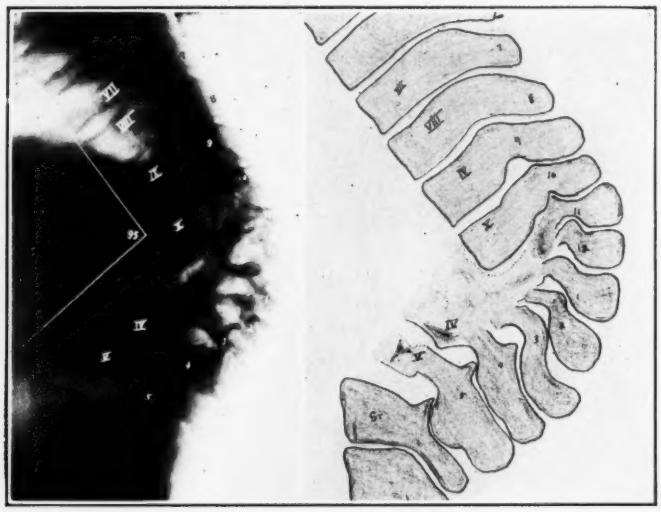


Fig. 4

Lateral roentgenogram of same case as *Fig. 3* on admission. There is a complete tuberculous destruction of the vertebral bodies of the eleventh and twelfth thoracic, and the first, second and third lumbar vertebrae, with a partial destruction of the fourth and fifth lumbar. There has been a collapse of the spine, giving an angle of 95 degrees.

by the writer. The excellent results recorded below followed chiefly operations done by Dr. Michael Hoke and Dr. Lawson Thornton. The group averaged 8.7 months of conservative treatment before operation. After operation they averaged 9 weeks in bed in a posterior shell or on a frame, 8.3 months in plaster jackets, and 3.3 years in braces. Some of the more recent cases are still wearing braces.

Excellent results were obtained in 34 cases, 68 per cent of the total group undergoing operation. One hundred per cent good results were obtained if only adequate operations are considered.

If the cases are grouped according to whether or not they had an adequate or inadequate operation, as stated above, then these 34 patients showing an excellent result are the 34 patients who had an adequate operation as verified by the roentgenograms. This gives 100 per cent excellent results for operative fusion. They are all entirely free from symptoms of back trouble and are in an excellent general condition. They have all gone to a regular school, and many have been able to play baseball or football. The older ones can do a full day's work in the mill or on the farm. The lateral roentgenograms in every case show a beginning fusion of the diseased bodies in the more recent cases to a firm bony ankylosis in the older cases. There has been no increase in the deformity since the bodies have fused. There have been no developments of secondary foci, no relapses and no deaths in this group.

Of the 15 patients who had an inadequate operation, one who had a spontaneous fusion showed an excellent result, 6 a satisfactory result, 6 a poor result, and 2 died. The lateral roentgenograms in each of these cases show that there was either a fracture in the graft over the center of the kyphosis, or that the fused area was short. In some cases only the spinous processes of the diseased vertebrae were fused, while in others two normal vertebrae were included on one end of the fused area and no normal vertebrae at the other end. The more nearly the operation approached adequacy the better was the clinical result. Two patients whose fusions

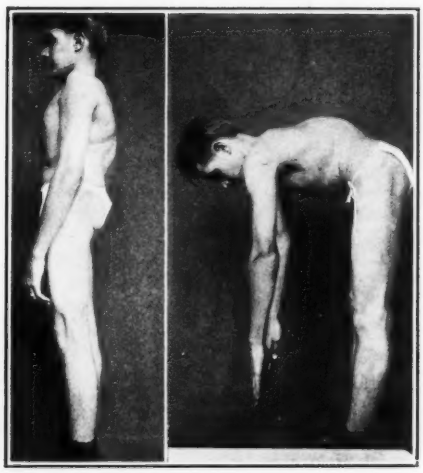


Fig. 6

Shows same patient five years after operation. He is free from symptoms and is able to do heavy work on a farm. The slight stiffness in his back is no handicap. There has been no increase in the deformity since the vertebral bodies fused about three years after the operation.

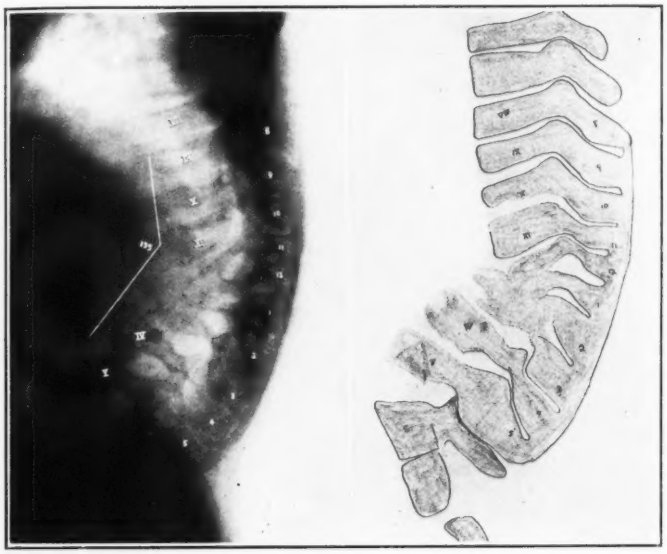


Fig. 7

Lateral roentgenogram made six months after spine fusion. This shows the heavy bridge of bone formed about the spinous processes from the eighth thoracic to the sacrum. The remains of the bodies of the fourth and fifth lumbar are again becoming normal in outline, and bone is being deposited throughout the diseased area. Roentgenograms at time of operation showed spine to be more nearly straight than it is now. However, it is 40 degrees nearer straight than it was at the beginning of treatment.

were short were relieved of their symptoms by a refusion, which lengthened the fused area.

Mortality.—There was only one postoperative death. This occurred in the early days of spine fusion in a three-year-old girl who had two kyphoses (T3-T6 and T11-L1). Both of these were fused at the same time. The patient died of shock four hours after operation.

There have been no deaths in the 34 who had adequate fusion. There were two deaths in the inadequate group. One occurred 2½ and the other 6½ years after operation. Each of these developed a tuberculous abscess and had a discharging sinus for several years before death.

Because of lack of space only one case report will be given, as this is typical of the 34 who had adequate fusion.

L. B., of Stone Mountain, Georgia, developed a kyphosis at the age of two. For the next two years he could walk only by placing his hands on his knees and supporting his body in this manner. A body brace was applied elsewhere one and a half years after the beginning of the kyphosis and was worn continuously for six years. The patient was able to go to school wearing his brace, but tired easily, and could not take part in games. *Fig. 3* shows the patient at the age of 13. *Fig. 4* shows a lateral roentgenogram of the spine made at the same time. There is a tuberculous involvement of all the bodies of the vertebrae from the tenth thoracic to the fifth lumbar, inclusive. The bodies of the eleventh and twelfth thoracic and the first, second and third lumbar are completely destroyed, while there is a hazy outline representing a portion of the fourth and fifth lumbar vertebrae. Drawing a line along the anterior margin of the bodies in order to measure the angle of the kyphosis, we find that the spine has collapsed until there is an angle of only 95 degrees. The patient was placed on a frame for a few days and then a plaster jacket was applied with the patient in the horizontal position, using head and pelvic traction. The jacket had a chin and occiput support, like the traction jackets used for scoliosis, only much less pull was used than is used for scoliosis. This jacket was wedged by cutting it all the way around and inserting small wooden blocks on the four sides and closing the cut with plaster bandages. Blocks about ¼ inch larger were inserted at weekly intervals, and the jacket changed every 4 to 6 weeks. The patient's chief complaint on admission was pain inside the ilium from pressure of the costal margin. This pain disappeared immediately after the application of the jackets. The patient was admitted to the hospital for a few days each time the jacket was changed, but the rest of the treatments were given in the out-patient department. *Fig. 5* shows the almost complete disappearance of the kyphosis after a year's treatment, during which time the patient continued in school. The patient was admitted to the hospital, and on July 1, 1926, had a spine fusion under ether anesthesia by Dr. Lawson Thornton. Three heavy bone shaving grafts were cut from the tibia and placed, one in the split spinous processes and one on each side of the processes. The intervertebral articulations were not curetted. The patient had a very smooth convalescence and the wound healed *per primam*. He was kept on a frame in the hospital for four weeks and on a frame at home for four weeks. Heliotherapy was continued during this time. A plaster traction jacket was applied and the patient allowed to walk. After four months in jackets the patient was fitted with a leather steel body brace which was worn for two and a half years. It is now six years since the operation. The patient has never had a return of the pain about the costal margin, or any symptoms referable to his back. He was able to play baseball on the Stone Mountain High School team, and since graduation has been able to work every day on a farm, doing as heavy work as a normal man. There is some stiffness in the lower back, but he says this is no handicap. *Fig. 6* shows his condition five years after operation. *Fig 7* shows a roentgenogram of the spine made six months after spine fusion, at the time when the jacket was discontinued and the brace

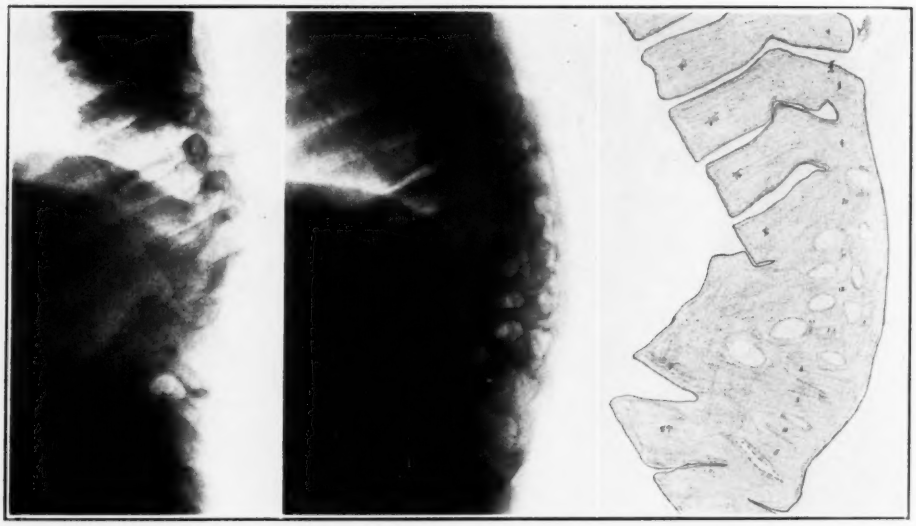


Fig. 8

Lateral roentgenograms made five years after operation show the solid bony ankylosis in the area of the diseased vertebral bodies, that this bone is as dense as the bone in the healthy vertebrae, and that the outline is sharp and clear cut. There is no evidence of active tuberculosis. The second film was made with a different roentgen exposure and shows the massive bone graft in the region of the spinous processes. This is more than an inch in diameter in the lower lumbar region. The tuberculosis in this spine has not only been cured, but this patient can enjoy a security far beyond that offered by any form of conservative treatment.

applied. Most of the deformity has been corrected. The angle has been opened out from 95 to 135 degrees. There is a heavy bridge of bone extending from the spinous process of the eighth thoracic to the fifth lumbar. Bone is beginning to be deposited in the bodies of the diseased vertebrae, and the bodies of the fourth and fifth lumbar vertebrae are reforming and becoming more nearly normal in outline. *Fig. 8* made five years after operation shows that there has been some increase in deformity which occurred before the bodies fused. There is now an angle of 108 degrees. There has been no increase in this angle since the bodies fused about three years ago after operation. Two roentgen exposures were made, one of which shows the solid fusion of the diseased bodies and the other the enormous amount of bone in the region of the operative fusion. The tuberculosis of the spine is not only cured, but the patient has the assurance of a security that can never be hoped for by any non-operative treatment.

SUMMARY

(1) The merits of the non-operative and the operative methods of treatment of tuberculosis of the spine cannot be accurately determined from a study of the conflicting statements in the literature.

(2) The important question for each of us to decide is, which method will give us the better result in our own particular climate, and with our individual operative ability.

(3) Spontaneous fusion of the diseased vertebral bodies, which is nature's method of curing the tuberculosis, occurred in only 2 per cent of the cases.

(4) The deformity should be corrected as much as possible before operation.

(5) Absolute immobilization is the most important prerequisite in the treatment of any tuberculous lesion. No type of mechanical support will give absolute immobilization. This can be obtained for the diseased bodies of the vertebrae only after the posterior portion of the vertebrae have been firmly ankylosed by bony fusion.

(6) In evaluating the results, we must distinguish between adequate and inadequate operations.

(7) All cases having an adequate operative fusion showed a solid bony ankylosis of the diseased bodies about three years after operation.

(8) Great care should be exercised to prevent operative shock, as tuberculosis patients do not undergo operation as well as healthy patients. Besides the immediate risk, there is the additional hazard of lowering the patient's resistance and thus disposing him to a flare-up later of tuberculosis elsewhere in the body.

(9) For this reason it is recommended that

if more than two vertebrae are diseased, the operation be done in two stages.

(10) For the same reason it is further recommended that the operation be done under local anesthesia.

(11) Bony fusion in the operative area and bony ankylosis of the diseased bodies occurs as rapidly in children as it does in adults.

(12) Mechanical support should be continued until the diseased bodies show solid fusion.

(13) The results in 40 cases treated by the non-operative method were: excellent 1, satisfactory 7, somewhat improved 14, unimproved 11, deaths 7.

(14) Results in 50 cases treated by the same method plus operation were: in 34 cases having adequate operation, excellent 34, or 100 per cent. In the 15 cases having inadequate operations, excellent 1, satisfactory 6, poor 6, deaths 2. There was one operative death.

(15) While operation does shorten treatment, it affords no excuse for neglecting to use everything of value in the conservative treatment, both before and after operation.

(16) Operative fusion is done only to cure tuberculosis, and this it will do in most cases, if an adequate operation is done and if adequate postoperative treatment is given.

REFERENCES

1. Rollier, A.: Heliotherapy. Oxford University Press, 1927.
2. Calve, Jacque: Outlined his method of treatment in discussion of "Report of Committee of Amer. Orth. Ass'n. on Ankylosing Operations of the Spine." Jour. Bone and Joint Surg., 19:507, 1921.
3. Galeazzi, R.: Twelfth Cong. Ital. Orth. An'n., Oct. 24, 1921.
4. Estor, E.: Revue d'orth., 9:554, Nov., 1922.
5. Courboules: Rev. de Chir., 45:5-6, 1926.
6. Girdlestone, G. R.: Brit. Jour. Surg., 10:372, 1923.
7. Wheeler, W. I. deC.: Practitioner, 109:341, Nov., 1922.
8. Bradford, E. H.: Intern. Jour. Surg., 35:261, Aug., 1922.
9. Kidner, F. C.; and Muro, F.: Jour. Bone and Joint Surg., 9:649, Oct., 1927.
10. Baer, W. S.: Johns Hopkins Hosp. Bull., 33:140, Aug., 1922.
11. Henderson, M. S.: Surg., Gynec. & Obst., 24:600, May, 1917.
12. Henderson, M. S.: J.A.M.A., 92:45, Jan. 5, 1929.
13. Meyerding, H. W.: Minnesota Med., 3:245, May, 1920.
14. Sisler, W. H.: Sou. Med. Jour., 17:995, Dec., 1924.
15. Hibbs, R. A.: J.A.M.A., 71:1372, 1918.
16. Hibbs, R. A.; and Risser, J. C.: Jour. Bone and Joint Surg., 10:805, Oct., 1928.
17. Albee, F. H.: J.A.M.A., 57:885, Sept. 9, 1911.
18. Albee, F. H.: Jour. Ortho. Surg., 14:134, 1916.
19. Albee, F. H.: J.A.M.A., 94:1467, May 10, 1930.
20. Rugh, J. T.: International Clinics, vol. 1, series 23.
21. Rugh, J. T.: Jour. Orth. Surg., 14:71, 1916.
22. Brackett, Baer and Rugh: Jour. Bone and Joint Surg., 19: 507, 1921.
23. Stone, C. A.: Jour. Mo. Med. Ass'n., 17:367, Sept., 1920.

DISCUSSION (*Abstract*)

Dr. J. Edgar Stewart, St. Louis, Mo.—Dr. Kite did not say anything about the preoperative treatment of his cases. I think this is a factor, and there are cases that have so little resistance or have gone to such a state that they have little or no resistance. Such cases are not subjects for operation unless after prolonged treatment for the development of resistance.

I was very much interested in the fact that the operations were done under a local anesthetic. If any of you have done these operations you know that the biggest problem is the bleeding that takes place. It prolongs the operation and the shock is much greater. If it can be done under local with epinephrine to prevent a great deal of bleeding, it is a tremendous help.

Dr. W. K. West, Oklahoma City, Okla.—I am very glad to hear that these operations can be done under local anesthetics. I should like to hear a little more about how Dr. Kite prepared these young children for local anesthetics.

Dr. Robert C. Robertson, Chattanooga, Tenn.—May I inquire as to Dr. Kite's criteria in deciding which cases should be treated surgically and which conservatively? I should also like to know if Dr. Kite feels that it is desirable to separate the diseased area by hyperextension prior to fusion. It is my feeling that this procedure not only increases the time required for the deposition of bone in the diseased area, but also increases the strain upon the grafts, so predisposing to non-union at this level.

Dr. Kite (*closing*).—The operative group averaged 8.7 months of conservative treatment before operation. This is unnecessarily long, and was probably due to the uncertainty in our minds as to the value of the operative treatment. It was not that it required so long a period as this to build up sufficient resistance for operation. If we divide the operation into two stages and use local anesthesia, most children can be operated upon shortly after admission. If the kyphos is marked, an attempt should be made to straighten it before proceeding with the operation, and during this time the child's general condition should be built up as much as possible. I think it is of far greater value to increase the amount of postoperative time in the hospital than of preoperative.

Local anesthesia does lessen hemorrhage. Only a few clamps are needed and these chiefly for the skin incision. We have done operations without applying a single ligature.

In the preparation of these children for local anesthesia, we give a hypodermic of morphine and atropin as if for gas anesthesia. If the child becomes restless or has pain he can, and should, be given gas, because pain will cause more shock than will a light gas anesthetic.

As to which cases should be treated surgically and which conservatively, I now feel that all patients who have not more than a half dozen vertebrae involved should be treated surgically, unless they are in a very poor general condition. I have fused all patients who have applied for treatment during the last two or three years, except one who has ten diseased vertebrae. When the disease is far advanced and the child's condition poor, and when a very extensive area will have to be fused, non-operative treatment might be continued.

Hyperextending the spine and separating the diseased bodies of the vertebrae has not been used in enough cases to be sure that it is the best treatment. I am strongly opposed to the use of force as it was employed in Europe some years ago. If the kyphos yields to gentle force, it should be gradually straightened.

Probably a long area of bony debris will fill in and heal as quickly as will a short area, just as a long skin incision will heal as quickly as a short one. The correction of the kyphos gives more room for the intrathoracic organs, and certainly improves the appearance of the patient for the rest of his life. It has harmed no patient and we are continuing to straighten the kyphos when we can, and are pleased with the results.

Straightening the spine may throw more strain on the grafts as Dr. Robertson says, but I do not believe that we can put in a sufficiently heavy graft to take all this strain and hold the correction. If the patient is not given proper external fixation after the graft has been placed, or is allowed ambulatory treatment too early, the twisting motion and strain on the graft will cause an absorption of the bone salts in the graft over the center of the kyphos and will soon produce a fracture in the graft. For this reason I prefer to curette the intervertebral articulations and get a three-point fusion instead of a one-point fixation as obtained by a graft. For the same reason I feel that it is most essential that a snug fitting cast be applied to give good external support after operation. If the lumbar spine is diseased, the spica and jacket should extend from one knee to the upper chest, and if the thoracic spine is diseased, a traction jacket should be applied extending from pelvis to chin and occiput. Even with the jacket the patient should still be kept in the recumbent position for much longer periods than has been our custom in the past. The measurements of the angle of the kyphos referred to above show that the kyphos becomes more acute during ambulatory treatment, even though a jacket or brace has been worn, until the diseased bodies have fused. After this there is no increase in the amount of the deformity.

To epitomize, almost 100 per cent of the children with tuberculosis of the spine can be cured, if the disease is not too advanced, by doing an adequate operation, and by giving adequate postoperative treatment.

BILATERAL TRAUMATIC PNEUMOTHORAX WITH RECOVERY*

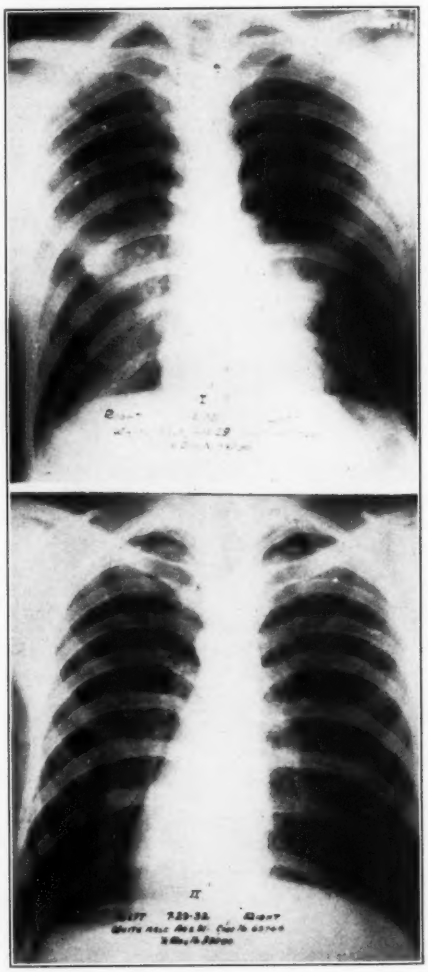
By O. R. TROJE, M.D.,
Fairfield, Ala.

A. W. K. (Case 63746, T. C., I. & R. R. Company's Employees' Hospital), a white man, age 29, was admitted to the hospital at 4:20 a. m., November 2, 1930.

The patient, while driving to work, ran his car into the side wall of a small concrete bridge. The car stopped almost instantly and the patient was thrown violently forward, his chest striking the steering wheel and his face striking the wind shield. He was rendered momentarily unconscious by the impact. He was immediately brought to the hospital. Examination revealed a well developed young white man gasping for air, somewhat cyanosed. There was no external evidence of injury except laceration of the lower lip with two broken incisor teeth. Inspection of the chest showed no external marks of injury. His chest excursion was markedly restricted. In fact, motion was so slight that it required careful observation to make it out at all, but it was equal on both sides.

On auscultation, breath sounds were found to be entirely absent over both lungs except for a small area near the mid sternum. At this point crepitant rales were heard. The percussion note was bilaterally tympanitic.

The abdomen was negative. His pulse was 96; res-



Top—Fig. 1
On admission.

Bottom—Fig. 2
Two years later.

*Case Report, Section on Radiology, Southern Medical Association, Twenty-Sixth Annual Meeting, Birmingham, Alabama, November 15-18, 1932.

*From the Department of Radiology, Tennessee Coal, Iron and Railroad Hospital.

pirations 24; temperature 100.2°; and blood pressure 105/65.

The patient was put to bed with radiant light to his body and given ¼ grain morphine by hypodermic. The oxygen tent and aspiration set were kept at hand, but never required.

An x-ray plate made on the morning of admission showed an almost complete bilateral pneumothorax. All lobes of both lungs were involved and they could be easily identified as separate lobes. The right upper and middle and the left upper suffered the greatest diminution in size. The lower lobes were probably the only ones capable of carrying the burden of aeration. The two uppers and right middle were probably at this time entirely incapable of function. All lobes gradually filled out, until on the day of discharge the plate showed the right lung almost entirely expanded except for the apex. The lung margin could be traced to the right costophrenic sulcus. The left lung was about 85 per cent filled out; the lobe margins stood out quite clearly. This patient was located after a lapse of nearly two years and x-rayed. No residual or other lesion was made out in this last plate.

The most remarkable feature of the case was the almost complete absence of subjective symptoms after the first few hours.

OBLITERATED PERICARDIUM BY HYPERNEPHROMA METASTASIS*

By JOHN A. LANFORD, M.D.,
and
E. PERRY THOMAS, M.D.,
New Orleans, La.

Metastatic neoplasms of the heart muscle are not so unusual that they warrant more than a small degree of interest. Karrenstein,[1] after a painstaking study, gives the incidence as 7.5 per cent of cases of disseminated new growths of all types. The primary incidence, though, is much less. However, pericardial metastases are most infrequent and there are very few cases reported in which the metastasis to the pericardium was sufficiently extensive to warrant comment. After a careful but not completely thorough search of the literature only two cases of pericarditis carcinomatosis[2] are found. The case which is now presented is the most unusual and surprising manifestation of neoplastic metastasis that has ever come to our attention.

The patient, Mr. E. B., age 42, was admitted to Touro Infirmary on April 28, 1932, with the chief complaint of loss of weight and weakness. To the best of his memory, his present illness began six months before, when he first noticed that he was losing weight and becoming weak, and suffered with night sweats and a dry, non-productive cough. No symptoms of an acute nature occurred.

Approximately three months previously, while performing light manual labor, he suddenly became dizzy.

He has had no headaches, no chills, and no fever. His appetite has been poor and he has occasionally been annoyed by nausea and upon two occasions has vomited. He has been constipated and has suffered a burning pain upon urination, but gives no history of passing blood.

For the past five weeks he has been confined to bed, and at the present time he is so weak that he is unable to raise himself.

At the age of 12 he suffered from chills and fever. With this exception, he cannot remember having ever been sick. He denies having ever had a penile lesion.

The patient has been married fifteen years and is the father of three children. His mother and father died of old age. There is no history of tuberculosis in his family.

He has been employed as a carpenter all of his life until the beginning of his present illness. He drinks moderately and smokes excessively.

Physical examination made the day of his admission shows the patient to be an emaciated, tall man who appears acutely ill and extremely weak. The eyes react sluggishly to light and accommodation. The face is thin and emaciated in appearance. The teeth show evidence of dental caries, the tongue is heavily coated and dry, and the breath is foul. The neck is long and thin and the supraclavicular spaces, the clavicles, ribs, scapulae, and vertebrae are extremely prominent. Chest expansion is recorded as fair and equal on both sides. Resonance is obtained throughout the chest save at the upper lobes posteriorly, where dullness is present. No rales are heard. The left border of the heart extends to the mid-clavicular line. No murmurs are heard. The abdomen is scaphoid in outline and the abdominal veins are extremely prominent. The liver is palpable two finger-breadths beneath the costal margin and the spleen is found enlarged. There is tenderness to pressure over the liver and in the right upper quadrant of the abdomen generally.

A blood examination made the day after admission reveals a total red cell count of 4,600,000 and a total white cell count of 93,500. The differential count shows 4 small lymphocytes and 96 neutrophils, 30 per cent of which are young forms. One and one-half per cent moist albumin and a few pus cells are present in the urine. The Wassermann reaction is negative.

An x-ray plate of the chest on April 29, 1932, was reported by Dr. W. F. Henderson, the roentgenologist, as follows:

"The diaphragms are normal and the heart shadow measures a total of 14¾ cm., while the inside diameter of the chest is 13 cm. This shows a moderate increase in the size of the heart. The aorta is within normal limits. The interlobar pleura on the right side is thickened, but the lung appears to be normal at this time. At the left base apparently extending outward from behind the heart there is an area of increased density. This is striated and rather sharply defined and appears

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*Clinic Case, Section on Pathology, Southern Medical Association, Twenty-Sixth Annual Meeting, Birmingham, Alabama, November 15-18, 1932.

*From the Departments of Pathology, Touro Infirmary and Tulane University School of Medicine, New Orleans, Louisiana.

to be in the lung tissue itself. While this may be only an area of bronchiectasis with considerable fibrosis, it is recommended that, if possible, a fluoroscopic examination be undertaken to add more information in regard to this area."

During his stay in the hospital, the patient became progressively weaker and refused nourishment. On May 1, 1932, he became irrational and was given 1,000 c. c. of 5 per cent glucose in 1 per cent saline by hypodermoclysis. A blood count on May 2, 1932, reveals 33,600 white cells and a differential count of 2 small lymphocytes, 1 large mononuclear cell, and 97 neutrophils. Due to the fact that such a marked decrease in the total white cell count had followed the administration of fluids, it was assumed that the first count of 93,500 white cells was the result of dehydration, the consequent decrease on the administration of fluids being the result of the relief of this condition. Two thousand c. c. of 5 per cent glucose in saline were also administered by proctoclysis upon this day. The patient continued to decline and died on the morning of the fifth day after admission. A diagnosis had not been made. The autopsy findings follow:

The body is that of an extremely emaciated white male, 42 years of age, which measures 5 feet 9 inches in length and weighs approximately 95 pounds. The bony frame-work is, in general, large and heavy, but the musculature shows evidence of wasting. The head presents no gross abnormalities in size or shape. The pupils are equal and slightly dilated, measuring 6 mm. in diameter. No discharge is noted from the nose, mouth or ears. The face is thin. The neck is long and thin. The thorax is of asthenic habitus. The abdomen is scaphoid in type. The cervical, axillary, and inguinal lymph nodes are not enlarged.

On opening the abdomen but little subcutaneous fat is encountered.

Peritoneal Cavity.—The parietal peritoneum is smooth and glistening in appearance; no adhesions are demonstrated; no excess fluid is present. The omentum hangs free within the peritoneal cavity covering the loops of bowel. The bladder is empty. The appendix measures 7 cm. in length and presents no gross evidences of pathological changes. The spleen lies in its usual bed and is slightly enlarged. The liver extends two fingers' breadth below the inferior costal margin. No adhesions surround the gallbladder. The gastro-intestinal tract is moderately distended with gas. There is felt just inferior to the liver and behind the peritoneum covering the posterior portion of the abdominal cavity a mass measuring approximately 10 cm. in diameter, which is fluctuant and appears to be encapsulated. The diapragm extends to the fifth interspace and fifth rib on the right and left sides, respectively. The mesenteric lymph nodes are not enlarged.

Thoracic Cavity.—The parietal pleura of the right hemi-thorax is smooth and glistening and is free of adhesions. No excess fluid is present. In the left hemithorax the under surface of the left lung is bound to the diaphragm and the inner surface of the lung is attached to the external surface of the pericardium by adhesions which, though apparently organized, are easily severed. No free fluid is present. The heart is greatly enlarged. The thymus cannot be demonstrated.

Heart and Pericardium.—The external surface of the pericardium covering the left ventricle is bound to the pericardial surface of the left lung by adhesions which are spongy and friable in character. On opening the pericardial sac the parietal pericardium is found closely adhered to the epicardium throughout its entire extent, practically obliterating the pericardial sac. These adhesions are a dirty grayish-yellow color and semi-firm in consistency; they appear to be made up of infiltrating neoplastic tissue. Small areas of hemorrhage are scattered throughout. The heart is markedly increased in size and its epicardial surface has been infiltrated by the growth mentioned above, which has extended into the myocardium for varying distances. In the left ventricular wall near the inferior portion of the interventricular septum it has infiltrated for a distance of 1.2 cm. and the remaining ventricular myocardium at this point measures only 1 cm. in thickness. Elsewhere throughout the ventricular wall it has infiltrated for distances which vary from 4 to 8 mm. On the posterior surface of the heart the neoplastic tissue has infiltrated the myocardium of the left ventricle for a distance of 1.5 cm. and in this area it comprises almost the entire ventricular wall. It is apparent that this tumor mass has extended from the left lung into the pericardium and from this point has infiltrated the more superficial portions of the myocardium, completely "seeding" the inner surface of the sac. The heart was fixed without section in order to preserve

Fig. 1

Photograph of gross organs. (a) Metastatic nodule in lung extending through pericardium. (b) Epicardial surface of heart entirely "seeded." (c) Primary growth in right suprarenal (kidney and suprarenal displaced for photographing).

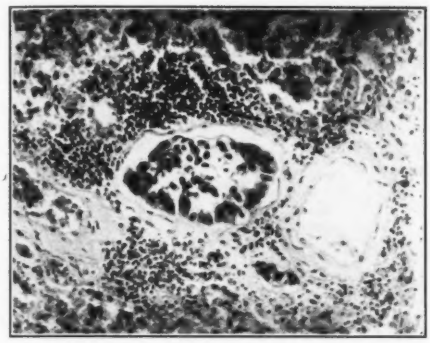


Fig. 2
Photomicrograph of metastasis in lung. Note metastatic nodule in vein.

the anatomical relationship of the structure and on this account no valvular measurements are taken because of the inaccuracy resulting from the shrinking of the tissue. The myocardium is a pale pink color and a few striae of connective tissue are seen coursing throughout it. The valves appear competent, although the aortic ring appears dilated. The organ weighs 862 grams.

Lungs.—The lungs are increased in size and are doughy in consistency. Their external surfaces are a dark purple color and areas of mottling are scattered across them. The diaphragmatic and pericardial surfaces of the left lung are covered by adhesions of neoplastic tissue; elsewhere the external surface of the lung is smooth and glistening. There is found in the lower lobe of the left lung a nodular mass, measuring 6 cm. in diameter and irregular in outline, which has infiltrated the pericardium and the diapragm and has implanted itself upon these structures. No other areas of consolidation are demonstrated. On section, the central portion of this nodule is necrotic and composed of a dirty grayish-yellow material of semi-solid consistency which is tinged with blood. This nodule is roughly circular in shape, irregular in outline and extends through the pericardium. The remaining portions of the cut surface of the left lung are a pinkish-gray color with some areas of mottling. The bronchioles are dilated and the mucous membrane is congested and covered with a light, grayish purulent material. A large amount of frothy material and blood exudes from the cut surfaces of the organ. No neoplastic nodules are demonstrated in the right lung, this organ showing edema only. The peribronchial lymph nodes are partly replaced by neoplastic growth.

Liver.—The liver is somewhat increased in size, but is of normal shape. The external surface is a dark marbled purplish color and is smooth and glistening. No areas of metastases are seen upon its external surface. Upon section, the cut surface is free from metastasis and is a light yellowish-brown color, congested and nutmeg in appearance.

Spleen.—The organ is increased in size; its external surface is a dark slate-gray color, smooth and regular in outline, and of soft consistency. Upon section, the parenchyme bulges above the level of the capsule and the cut surface is granular in appearance and is a dark red color. The pulp scrapes away easily.

Suprarenals.—The left suprarenal is of normal size and shape. On section, the cortex is a light golden-yellow color and well demarcated from the medullary portion.

The right suprarenal has been replaced by a tumor mass which is roughly circular in shape and measures approximately 10 cm. in diameter. It is apparently encapsulated and is almost fluctuant in consistency. It is firmly attached to the superior pole of the right kidney. On section, the tissue cuts with ease, is extremely soft, friable, and spongy in character and varies in color from a dirty yellowish-gray to a reddish-brown. In scattered areas, liquefaction has occurred with the formation of a semi-solid material of a dirty yellowish-gray color, tinged with blood. The right suprarenal veins are greatly dilated and infiltrated by the tumor. The adjacent segment of the inferior vena cava is opened and its lumen is found occupied by a tumor mass which extends into it from the right suprarenal vein. The walls of both the right suprarenal vein and the adjacent portion of the vena cava have been infiltrated by the tumor mass. Extension has also occurred into the superior portion of the right kidney.

Kidneys.—The left kidney is slightly increased in size. Its external surface is a dark grayish-red color and is smooth and regular in outline. Upon section, the tissue cuts without increased resistance to the knife and the cut surface reveals the cortex swollen in appearance. Numerous small pin-point areas of a bright red color are scattered throughout the cortical portions. The pyramids are large, congested, and striated in appearance. The entire cut surface is congested. The pelvis is of normal size; the ureter is not dilated. The capsule peels readily, leaving a fairly smooth surface.

The right kidney is increased in size and its superior pole is somewhat distorted in shape. Upon section, the superior pole is found entirely replaced by an extension of the neoplastic tissue from the adjacent suprarenal gland. The lower portion of the kidney is not involved and in this region the cortical portion of the kidney is well demarcated, and the structures resemble those of the organ previously described. At the lower pole there is seen a small neoplastic nodule on the ex-

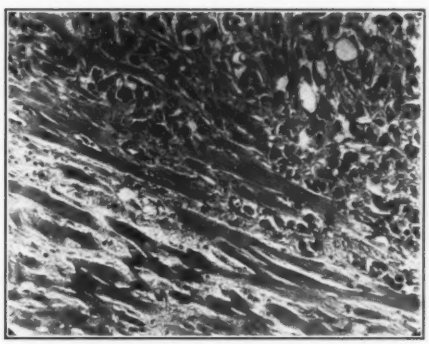


Fig. 3
Photomicrograph of metastasis in the heart.

ternal surface, of the same character as that noted in the right suprarenal gland. The pelvis of the organ contains a small amount of bloody urine.

Pancreas.—The pancreas is of normal size and free from neoplastic nodules.

Anatomical Diagnoses.—Hypernephroma of the right suprarenal gland, infiltrating into the right kidney, the right suprarenal vein and the adjacent portion of the inferior vena cava with metastases to the left lung, pericardium and the heart. Edema of the lungs, bronchiectasis, chronic bronchitis, chronic myocarditis, fatty denegeration of the liver, chronic passive congestion of the liver, chronic passive congestion of the spleen, and acute parenchymatous nephritis.

We have here presented the unusual case of a man who had an unsuspected neoplasm of the right suprarenal with metastases into the inferior vena cava and to the lung with extension of the secondary pulmonary new growth through the pericardium, producing a growth of sufficient amount and extent completely to obliterate the pericardial cavity.

While the clinical history suggests cardiac weakness, the physical examination elicited no abnormal signs or symptoms suggestive of pericardial involvement.

An interesting feature of the case was a leukocytosis of 93,500 (checked by two interns) without other evidence of bacterial invasion and the most surprising scarcity of leukocytes in the deep blood vessels of the organs.

We acknowledge with thanks the courtesy of Drs. I. I. Lemann and B. R. Heninger, of the Medical Staff of Touro Infirmary, for the opportunity to present these cases.

REFERENCES

1. Quoted by Yater, W. M.: Tumors of the Heart and Pericardium. Arch. Int. Med., 48:627-666, 1931.
2. Cleland, J. B.; and Palmer, A.: A Case of Malignant (Carcinomatosis) Pericarditis. Med. Jour. of Australia, 1:233-237, March 13, 1920.
Weber, F. Parks: Pericarditis Carcinomatosis. Practitioner, 100:246-249, 1918.

DISCUSSION (*Abstract*)

Dr. Clayton E. Royce, Jacksonville, Fla.—I am interested in the hyperleukocytosis. This adds another to those cases of malignancy which sometimes show a hyperleukocytosis of polymorphonuclear neutrophil type. Two years ago we found 33,000 leukocytes in a case of peritoneal malignancy without symptoms of inflammation. This continued to rise until shortly before death 60,000 white cells were found, over 90 per cent of which were polymorphonuclear neutrophils.

Dr. E. von Haam, New Orleans, La.—Metastasis of hypernephroma to the heart muscle is rare. Of the cases of hypernephroma at the Charity Hospital in which autopsies have been performed, only one showed metastasis to the myocardium; 4 showed metastasis to the skin.

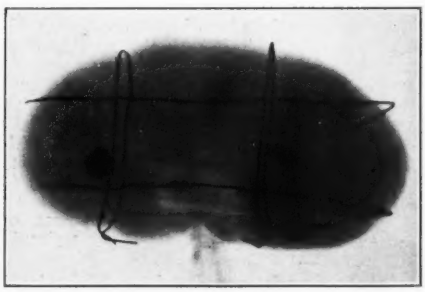
A SIMPLE DEVICE FOR LOCALIZING SMALL STONES IN THE KIDNEY SUBSTANCE*

By HUBERT K. TURLEY, M.D.,
Memphis, Tenn.

Small stones are frequently very difficult to locate in the cortex of the kidney, often requiring extensive incision into the kidney substance and producing considerable damage. Remembering the difficulty we have sometimes encountered in locating foreign bodies at operation in war injuries, and what valuable aid markers rendered us, not only in lessening time of operation, but materially reducing the amount of trauma to tissue, I have designed the following little device to aid the surgeon in localizing small stones in the kidney substance.

A rectangle made from No. 24 silver wire, 4.5 cm. long and 2.5 cm. wide. All intersections were lightly soldered to reduce their shadow casting to a minimum. The two wires forming the short ends of the rectangle are left long enough to encircle the kidney and fasten firmly if desired, thus insuring accuracy of location. The device thus divides the kidney into nine sections. Behind the delivered kidney a small x-ray film well covered with a sterile slip is placed and exposure made. The marker is left intact and unmolested until the film is developed. Comparison is immediately made with the marked kidney and the definite location of the stone made. Then, by use of a straight needle first, or direct incision over the stone, the stone is removed with a minimum of damage to the kidney substance.

The wires are very pliable, so the application is quickly and easily made, with no damage whatsoever to the kidney.



I wish to thank Dr. W. R. Bethea, of the X-Ray Department of Baptist Memorial Hospital, for his assistance and advice; also, C. R. Bard, Inc., for making the instrument.

815-20 Medical Arts Building

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EPIDEMIOLOGICAL STUDIES UPON TYPHOID FEVER IN GEORGIA: PROBLEMS ASSOCIATED WITH ITS CONTROL*

By DANIEL L. SECKINGER, M.D., DR.P.H.,†
Atlanta, Ga.

INTRODUCTION

The present study embraces complete epidemiological investigation of 216 cases of typhoid fever in Georgia over a period of eighteen months, conducted by the Division of Epidemiology of the Georgia Department of Public Health. These investigations were begun in June of 1931, and for the greater part were carried on intensively during the past two summers. For very obvious reasons the work had to be interrupted from October, 1931, to February, 1932.

With the establishment of the Division of Epidemiology of the Georgia Department of Public Health in June, 1931, one of the first problems that engaged the attention of the writer and about which the State Health Officer, Dr. T. F. Abercrombie, has long since been greatly concerned, was the high death rate from typhoid fever in the State. With the exception of one year, 1929, when the rate was 11.7 per 100,000 population, the death rate has remained constantly above 15 per 100,000 over a 12-year period since 1920, at which time the Bureau of Vital Statistics was established and beyond which we have no accurate information (*Table 1*).

The past 20 years has witnessed such progress in the control of typhoid fever that certain cities and states are now able to speak about typhoid as disappearing. Since the beginning of the century the death rate has fallen over the country from 30 to 4 per 100,000 population. Progress in the control of typhoid has been more rapid in some states than in others. To learn just what were some of the factors responsible for our high typhoid rate and to gain a better knowledge of its epidemiology as applied to Georgia at the present time, is the purpose of this study.

The State of Georgia is the largest east of the Mississippi. Its 159 counties extend from the very mild and temperate North Florida border to the heart of the Blue Ridge Mountain in the north, some 400 miles, where the climate is comparable to that of Charlotte, North Carolina. It is indeed true, judging from spot maps, that summer typhoid conditions may prevail in the southern part of the State while the northern section may enjoy the winter quiescent period, comparable to other states in the latitude.

No study of typhoid fever in our State would be complete without due attention to several factors among certain elements of the population, which add greatly to problems of control and eradication. Primarily an agricultural State, farms everywhere are populated by tenants, both white and colored, whose plight at present in many instances approaches desperation. The depression, which followed close upon the ravages of the boll weevil, has left the Georgia white farmer in a precarious condition, while the status of the negro is even worse.

Table 1

DEATHS AND DEATH RATES PER 100,000 POPULATION FROM TYPHOID FEVER, BY COLOR, IN GEORGIA, 1920-1931

Year	Deaths from Typhoid Fever					
	Number			Rate per 100,000 Population		
	Total	White	Colored	Total	White	Colored
1920	549	247	275	19.0	16.2	22.9
1921	798	351	447	27.5	20.5	37.7
1922	714	326	388	24.6	18.9	33.1
1923	601	244	357	20.7	14.0	30.8
1924	681	292	389	23.5	16.7	33.9
1925	675	264	411	23.3	14.9	36.2
1926	519	191	328	17.9	10.7	29.3
1927	653	285	368	22.5	15.9	33.2
1928	444	182	262	15.3	10.0	23.9
1929	340	140	200	11.7	7.7	18.5
1930	500	207	293	17.2	11.2	27.3
1931	513	201	312	17.5	10.8	28.9

From *Table 1* it can be seen that since 1923 the typhoid death rate among negroes is more than twice, and in some instances nearly three times that of the whites. To explain this would require more study and knowledge than we possess at present, but in general it may be accurately stated that sanitation, particularly in urban communities, has been confined almost exclusively to areas occupied by white people. In rural areas the factor of sanitation shows little variation, because everywhere as a rule the absence of sanitation is so apparent that in many communities there is little variation between the races in this matter.

It is believed that the financial status of the people in rural areas has operated in no uncertain

*Read in Section on Public Health, Southern Medical Association, Twenty-Sixth Annual Meeting, Birmingham, Alabama, November 15-18, 1932.

†Chief, Division of Epidemiology, Georgia Department of Public Health.

Table 2

Age	White				Colored				Total	
	Male	Per Ct.	Female	Per Ct.	Male	Per Ct.	Female	Per Ct.	No. Cases	Per Ct.
0 to 4 years	8	3.7	5	2.3	6	3.0	2	0.9	21	9.7
5 to 9 years	18	8.3	18	8.3	4	1.9	10	4.5	50	23.1
10 to 14 years	20	9.2	11	5.1	12	5.6	12	5.6	55	25.5
15 to 19 years	8	3.7	11	5.1	10	4.6	4	1.9	33	15.3
20 to 24 years	6	2.8	5	2.3	6	3.0	3	1.4	20	9.3
25 to 29 years	2	0.9	3	1.4	1	0.5	4	1.9	10	4.6
30 to 34 years	4	1.8	7	3.2			1	0.5	12	5.5
35 to 39 years	5	2.3	1	0.5	1	0.5	1	0.5	8	3.7
40 to 49 years	1	0.5			1	0.5	1	0.5	3	1.4
50 to 59 years	2	0.9	1	0.5					3	1.4
60 to 69 years			1	0.5					1	0.5
Total	74	34.1	63	29.2	41	19.6	38	17.7	216	100.0

way to maintain a high typhoid rate, which has been brought forcibly to mind during the course of these studies. There are thousands of families throughout the State who barely eek out an existence, and I am reliably informed that scores of children are out of the schools for want of shoes and clothing. In many instances illnesses in these families go undiagnosed and untreated, as I have found from time to time during these investigations. At times medicine for fever may be procured from the drug store in town, and illnesses may exist for weeks without any physician in attendance. It not infrequently happens that from 2 to 10 secondary cases may arise in such homes with cases breaking out here and there throughout the community. The number of deaths due to diseases unattended by physicians have increased from 3,497 in 1929 to 3,899 in 1931. These figures, we believe, include some who died from typhoid fever, and support our belief that in many ways the typhoid situation over the State is associated with the present depression. On the basis of projected estimation, deaths due to diseases, excluding violence, and without a physician in attendance, recorded at the Division of Vital Statistics for the year 1932, will total, conservatively estimated, 4,100, an increase of 700 during the past three years.

With reference to the 216 cases of typhoid fever included in the present study, the sample is composed of cases investigated in practically every section of Georgia from the mountains to the seashore, in rural areas, unincorporated towns and incorporated towns to 25,000 and several above. No fixed plan for the selection of this sample was adopted. The investigations were usually made following requests for aid to the State Department of Health, and in several instances where areas on our spot map showed typhoid fever to be on the increase.

The essential epidemiological findings and summaries, based upon the 216 cases investigated, are recorded below.

COLOR, SEX, AND AGE

With reference to color, 135 were white and 81 were colored. Among the white cases 74 were male and 63 female, or 29.2 and 28.6 per cent, respectively. Among the colored, 41, or 19.6 per cent, were male and 38, or 17.7 per cent, female. With reference to age, in both races the greatest percentage of cases occurred in the early adolescent period: 5 to 9 years, 23.1 per cent; 10 to 14, 25.5 per cent; and 15 to 19, 15.3 per cent. In both races and sexes 73.7 per cent of cases occurred among individuals under 20 years (*Table 2*).

ENVIRONMENTAL SURROUNDINGS

Neighborhood population for the sake of convenience was classified as densely and sparsely settled communities, of which 104, or 50.6 per cent, occurred in the former, and 101, or 49.4 per cent, in the latter. The sanitary ratings of households where cases occurred are as follows: good, 47, or 21.6 per cent; bad, 166, or 78.4 per cent (*Table 3*). If 19 cases, which occurred in well sanitated homes in two different towns and are believed to have been infected from con-

Table 3

ENVIRONMENTAL SURROUNDINGS

Neighborhood Population				Sanitary Rating of Households			
Dense	Per Ct.	Sparse	Per Ct.	Good	Per Ct.	Poor	Per Ct.
104	50.6	101	49.4	47	21.6	166	78.4

taminated milk, are excluded, we find that sanitary conditions were bad in 86.5 per cent of the cases.

Sewage Disposal.—In 44, or 20.6 per cent of the cases, homes were connected with city sewage systems, and septic tanks served 9, or 4.2 per cent, while 120, or 56.3 per cent, used open surface privies. Forty, or 18.3 per cent, of the cases occurred in homes where there were no toilet facilities whatsoever (*Table 4*). If the 19 cases referred to above are deducted, we find that 82.1 per cent either used open surface privies or had no toilet facilities.

Table 4
SEWAGE DISPOSAL

City Sewer System		Septic Tank		Open Surface Privy		None	
No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
44	20.6	9	4.2	120	56.3	40	18.3

Water.—So far as these investigations extended, there is no evidence of water-borne outbreaks in connection with city water supplies. In several instances shallow wells have doubtless been involved, but here, too, other factors may be involved, such as open privies, flies, improper disposal of excreta, and close contact. Only 60, or 28.0 per cent, of the patients drank city water exclusively, while 151, or 70.5 per cent, drank well water, and 3, or 1.4 per cent, drank spring water (*Table 5*).

Table 5
WATER SUPPLY

City		Well		Spring	
No.	Per Cent	No.	Per Cent	No.	Per Cent
60	28.0	151	70.5	3	1.4

Milk.—With reference to milk consumption, 21, or 11.5 per cent, were supplied by dairies; 74, or 40.4 per cent, obtained the supply from their own cows or from neighbors, and 88, or 48.1 per cent, used no milk (*Table 6*).

During the course of these investigations two cases of typhoid fever occurred on dairies, involving in the first instance 14 cases and in the second 5 cases. The first outbreak occurred in Athens, Georgia, in July, 1931. The City of Athens, with reference to its water and sewage disposal system, ranks high among other cities in the State. Ninety per cent of the cases of typhoid fever occurred on the milk route of a dairy that furnished raw milk to a number of homes in the best sanitated sections of the city. These cases are believed to have been caused by a boy, later found to have typhoid fever, who substituted one morning on the dairy route and left milk on the doorsteps of a number of customers. The second dairy involved in the possible spread of typhoid fever furnished raw milk to its customers. This outbreak is believed to have been precipitated by the prolonged illness and sudden death of a colored boy who lived near the dairy and where no sanitary precautions were taken. Following this illness a case developed at the dairy and four others on the dairy route in the best sanitated sections of the city.

Table 6
MILK SUPPLY

Dairy		Own or Neighbor's Cow		None	
No.	Per Cent	No.	Per Cent	No.	Per Cent
21	11.5	74	40.4	88	48.1

Recent Travel or Change of Address, Meals Elsewhere, and Known Association.—Of 186 cases where records are available with reference to travel or change of address, 40, or 21.5 per cent, had traveled or changed their address within one month prior to their illness, and of 163 cases where data is available, 42, or 25.7 per cent, had meals elsewhere than at their homes within a period of one month. Data with reference to previous contact or association with known cases or carriers, shows that 101, or 49.7 per cent, admitted previous contact or association, while 102, or 50.3 per cent, denied same.

Disposal of Excreta.—Fairly accurate data with reference to disposal of excreta from 196 patients was obtained (*Table 7*). In 54, or 27.6 per cent, excreta was disinfected and dumped into the city sewage system; in 25, or 12.8 per cent, it was buried without previous treatment; in 37, or 18.8 per cent, antiseptic solution, usually lysol, was used followed by burying. In 88, or 48.1 per cent, no treatment of excreta was practiced at the time of our visit, and stools were dumped on the surface of the ground with free access to flies and anything else that might chance to come along.

Table 7
DISPOSAL OF EXCRETA

City Sewer System		Excreta Buried		Disinfectant Burial		No Treatment Dumped on Ground	
No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
54	27.6	25	12.8	37	18.8	80	40.8

Contact.—It is significant and worthy of comment that 101, or 46.8 per cent, of the cases of our series were in 32 houses in which from 2 to 10 cases occurred. In every one of these houses without exception sanitary conditions were classified as bad and the disposal of excreta, if attempted at all, was poorly carried out (*Table 8*). Under summer conditions the opportunity for spread of the disease by flies was particularly noticeable everywhere.

Table 8

HOUSES WITH MORE THAN ONE CASE OF TYPHOID FEVER

Houses with—	Number	Cases
2 cases	13	26
3 cases	11	33
4 cases	5	20
5 cases	1	5
7 cases	1	7
10 cases	1	10
Total	32	101

BACILLUS CARRIERS

It is perhaps unnecessary in a paper of this kind to elucidate the role played by carriers in the spread of typhoid fever. That temporary and chronic carriers contribute cases continuously, is a fact that no one will doubt. The detection of carriers, especially chronic carriers, however, still constitutes a problem and one about which a great deal may be said. I personally believe that the success the epidemiologist may have in the detection of carriers will depend in no small measure upon the interest that he shows in the carrier problem during the course of his investigations in the community. It is admitted that a State epidemiologist cannot remain in the community long enough to collect all specimens, but while he is there, there is usually opportunity to enlist the aid of others interested in the local typhoid problem; usually this is the local physician, or some other public citizen in unorganized communities. It is to them that we owe no small amount of credit for the carriers found during these investigations.

For the past six months the carrier phase of our typhoid program has been stressed with vigor, and during this time 6 chronic carriers have been detected through the examination of stools and urine plated on Endo medium in the Laboratory of the State Department of Health. In *Table 9* are included the chronic carriers that were found in connection with our investigations; 3 are male and 3 female; 4 are white and 2 colored. By occupation 2 are farmers; 1 a housewife; 1 a cook; and 1 a practical nurse. Five of the group are feces carriers and 1 a urine carrier. The only method of sewage disposal for all carriers was the open privy, with one exception, where disposal was made by means of a toilet in the back yard connected with a city sewage system. The 6 carriers are credited with having caused 36 primary or secondary cases of typhoid fever in the series of 216 cases, constituting 17.0 per cent of the total cases studied. The number of carrier years total 43. One carrier had typhoid fever 12 years before and another 20 years before. Since the number of infections averaged 6 per cent per carrier roughly for the past year, on this basis we may assume that 258 cases of typhoid fever might have been caused by these carriers. As a matter of fact, this number may be greatly exceeded, for these carriers might have caused other cases during the past year not included in this study. Seven convalescent carriers are credited with having caused 16 cases of our series, and if these are added to those caused by chronic carriers, a total of 52 cases were caused by convalescent or chronic carriers.

Table 9

TYPHOID CARRIERS

Chronic Carrier	Sex		Color		Age	Occupation	Date of Typhoid Illness	Type of Carrier	Primary and Sec. Cases	Years as Carrier	Sewage Disposal
	Male	Female	White	Colored							
1	M		W		40	Farmer	June, 1931	Urinary	9	1.5	Open privy
2	M			C	11	School	Dec., 1931	Feces	5	1.0	Open privy
3		F	W		48	Housewife	Summer, 1928	Feces	5	4.0	Open privy
4		F		C	46	Cook	Summer, 1927	Feces	1	5.0	Toilet in yard
5	M		W		46	Farmer	May, 1920	Feces	9	12.5	Open privy
6		F	W		51	Prac. nurse	Summer, 1912	Feces	7	20.0	Open privy
Total	3	3	4	2					36	43.0	

Table 10

CASES VACCINATED WITHIN ONE YEAR

Case No.	Interval Between Vaccination and Illness	Diagnosis			Termination of Illness		Neighborhood Sanitation		Sewage Disposal		Detection of Chronic Carrier	
		Clinical	Widal	Blood Culture	Recovery	Death	Good	Poor	City Sewage System	Surface Privy	Yes	No
1	2 weeks	x			x			x		x		x
2	7 weeks	x	x	x	x			x	x			x
3	2 months	x		x		x		x		x	x	
4	2 months	x	x	x		x		x		x		x
5	4 months	x	x			x		x		x	x	
6	4 months	x		x	x			x		x		x
7	5 months	x	x	x		x		x		x	x	
8	6 months	x	x	x	x		x		x			x
9	6 months	x	x	x	x			x		x		x
10	8 months	x	x	x	x			x		x		x
11	9 months	x	x	x	x			x		x		x
12	10 months	x			x			x		x		x
13	10 months	x	x	x	x		x		x			x
14	11 months	x	x	x		x		x		x		x
15	11 months	x	x		x			x		x		x
16	11 months	x	x	x	x			x		x		x
17	11 months	x			x			x		x		x
18	11 months	x			x			x		x		x
19	12 months	x	x	x	x			x		x		x
20	12 months	x	x		x		x			x	x	
21	Indefinite	x			x			x		x		x
Totals		21	14	13	16	5	3	18	3	18	4	17

TYPHOID VACCINE

Of the 216 cases included in our series, 21, or 9.7 per cent, were credited with having had typhoid vaccine within one year from their date of illness. In *Table 10*, dates of vaccination and the dates of onset of illness are given as definitely as it has been possible to obtain from data collected for this purpose, and it may be seen that the interval between vaccinations and onset of illness varies from two weeks to twelve months. By way of explanation, it should be stated that in a number of instances histories of vaccination within 2 and 3 years were obtained, but this data is purposely not included within *Table 10*. It may be seen in 13, or 62.0 per cent, of these cases that blood cultures were positive. Positive Widals were recorded in 14 cases, but little reliance is placed on the Widal report because of recent vaccinations. It has been necessary to rely upon clinical diagnoses in 7, or 34.8 per cent, of the cases, but here diagnoses were verified by clinical histories obtained by physicians in charge of the cases.

Contrary to established belief, the mortality among the previously vaccinated cases of this series is exceedingly high. Five, or 23.8 per cent, succumbed to the disease. Here, however, it is recognized that this series of cases is too small to draw any conclusions, except that previous vaccination does not seem to have influenced favorably the mortality rate. This is not surprising if the pathology of typhoid fever and the complications that occur in the third and fourth weeks of the disease are kept in mind. Without exception, physicians in charge of these cases stated that death was due to hemorrhage or perforation.

With reference to opportunity for the spread of typhoid fever among the series previously vaccinated, neighborhood sanitation was found to be exceedingly poor in 18, or 85.7 per cent, of the cases. Open surface privies were found on the premises of 16, or 76.2 per cent, and chronic bacillus carriers were detected in the homes of 4, or 19.0 per cent, of these patients.

One outbreak recorded in this paper is of such importance in the study of endemic typhoid fever that it warrants special consideration. For fifteen years a small South Georgia town of 445 population, according to the 1930 census, had been practically free of typhoid fever. The town is incorporated, but has no municipal water or sewage system. The inhabitants believed that it was a particularly healthful community, yet a survey of the town would convince the

casual observer that conditions were at all times favorable for the spread of typhoid fever. In June of 1931 a recent white convalescent from typhoid fever moved to town and established residence at the home of a relative. There were six members of this household. Within three weeks the mother of this household developed typhoid fever. The attending physician then immunized all members of the family. A subsequent case developed in the same house within several weeks and the physician proceeded the second time to immunize all members of the household with 3 additional immunizations. Before his second series of immunizations was completed, another member of the household developed typhoid fever, having had previously 5 doses of vaccine. This case was terminated with a fatal hemorrhage. No more cases occurred in this house until January of the present year, when another occupant developed typhoid fever. This individual was one of the members of the family who previously had 6 typhoid immunizations. Here again a terminal and fatal hemorrhage or perforation completed the picture. Upon my visit to that community in February of this year, 9 cases of typhoid fever had occurred sporadically in the near vicinity with 3 deaths. Household and community sanitation was particularly bad and flies were in evidence everywhere. Stool and urine cultures were made of all citizens who presented any history of having typhoid recently or in the remote past. As a result a urinary carrier was found in the person of the convalescent who came to town in June. The town authorities immediately passed a sanitary privy ordinance which was put into effect immediately. No cases have occurred since that time.

In a sense I believe that the entire endemic typhoid situation throughout the State may be summarized in the sporadic outbreaks that occurred in the town referred to above, and from a careful analysis of the situation and the mental attitude on the part of the citizenry and physicians with reference to typhoid vaccine, interesting deductions may be made, which supports the belief that in many communities the hypo needle is relied upon as the sole corrective measure.

DISCUSSION

The long summers and mild winters unquestionably are factors that tend to maintain a high typhoid rate in Georgia. Added to the climatic factor, the social and economic status of the rural population, where there are 1,269,241 whites, or 69.9 per cent of the total white population, and 754,448 colored, or 70.43 per cent of the total colored population, is such that opportunity for the spread of typhoid fever is particularly favorable. The fact must be borne in mind that only 30.8 per cent of the 2,908,506 total population of Georgia is urban, and even if it were true that community sanitation is fully stressed and appreciated everywhere in urban areas, on this basis it extends to less than one-third of the people of the State.

Community sanitation in the rural areas, with few exceptions, is little known or appreciated, and the decreased ability and opportunity for 70 per cent of our population to obtain medical advice and guidance in the diagnosis and control of communicable disease, due to decreased earning capacity, is alarming.

The amount of typhoid vaccine distributed by the Laboratory of the Department of Public Health has increased progressively from a total of 1,737 c. c. in 1912 to 421,606 c. c. in 1931, of which 124,580 c. c., or 30 per cent, went to 30 health officer counties. These counties constitute approximately 50 per cent of the population. The death rate in organized counties for 1931 is 14.0 per 100,000 population and for the unorganized counties 20.4. It is not my purpose to enter into a discussion of vaccination here, but it does appear that factors other than vaccination tend to cause a lower rate in organized counties, for, as seen above, the health office counties gave only 30 per cent of the total amount of vaccine dispersed throughout the State in 1931, and at the same time the death rate for these counties is considerably lower. We believe that certain factors, such as municipal sanitation in general, control of water and milk supplies, proper isolation of cases, the care of the sick, and the proper disposal of human excreta, have played an important role in the lower death rates of organized health counties.

As early as 1910, Dr. W. H. Frost,[1] in his study of the water supply of Williamson, West Virginia, sounded a warning so applicable to any program of typhoid eradication that I take the liberty to quote him:

> "A safe water supply may be expected greatly to reduce the prevalence of typhoid fever in Williamson, but it is to be expected with equal certainty that even with pure water supply, if other preventive measures are neglected, the disease will remain constantly and excessively prevalent and will doubtless at times become epidemic."

We may well apply that warning in any program of typhoid control today, whether it be water purification, control of dairies or vaccination. Unless every factor involved in the epi-

demiology of typhoid fever is properly appreciated and emphasized in any program of control, a considerable part of the program may be doomed to failure so far as ultimate results are concerned.

We hope that our program is being shaped and directed along lines that will eventually have its telling effect upon the population. Reporting of cases, case investigation, detection and control of convalescent and permanent carriers, sanitation and vaccination, particularly of contacts, are some of the measures instituted in a campaign against typhoid by the State Health Department. However, it is one thing to appreciate and evaluate the importance of these measures in a state health department; it is quite a different thing to institute and make them effective throughout the state. Yet, certainly under present conditions, we can hope for little betterment in the typhoid situation until it becomes a part of the control program of the entire State. Unfortunately, there are many who have been led to believe that vaccination against typhoid constitutes the entire program of control. It doubtless helps, but we should go further and shape our programs about the hope of eradication.

One final word with reference to typhoid vaccine.

As early as 1927, Arkwright[2] conducted careful studies with reference to the immunizing factor in different strains of typhoid organisms, using guinea pigs as experimental animals. In substance he found that organisms which produce rough colonies have little or no immunizing properties against organisms which produce smooth colonies; whereas, vaccines prepared from organisms which produce smooth colonies immunized his animals against virulent smooth colony organisms. Furthermore, he demonstrated that the immunizing substance in his smooth colony vaccines is thermostable and protects as well after being heated to 100° C. for 30 minutes as at 53° C. He therefore concludes that the protecting substance is not an agglutinin of the type supposed by the Antityphoid Committee of 1912 to have contained the immunizing substance, for this agglutinin is destroyed by heat above 53° C.

In 1929, Mallick and McCombs,[3] following Arkwright, set out to investigate the immunological relationship between rough and smooth variants of *B. typhosus*, also using guinea pigs as test animals. They conclude that rough vaccine affords little or no protection against infection either by smooth or rough variant, whereas smooth vaccines protected against infection by smooth variants.

In 1930, Grinnell[4] pointed out that the customary course of prophylaxis is with a vaccine made from a rough strain of *B. typhosus Rawlins*, which produces little or no increase in the bactericidal power of the blood, while a similar course of treatment made from a smooth virulent strain of *B. typhosus* causes a considerable increase in bactericidal antibodies. He also pointed out that vaccination with rough strains leads to the production of agglutinin for the virulent strains with no increase in the bactericidal power of the blood, and that therefore agglutination is not an adequate test of the resistance of the individual.

It remains for the bacteriologist to settle this important question. In fact, all of our cases illustrating the failure of vaccine might be explained on the basis of opportunity for continued and repeated mass infection, which has been brought out in this paper. However, in the light of recent experimental evidence, there is little doubt that the entire field of typhoid vaccination therapy, as employed in the past, has been seriously challenged. To explain vaccine failures at the present time on the basis of "mass infection," in the light of more recent knowledge, is to evade the issues that bacteriologists are bringing to the front. In the presence of an impotent vaccine, the question may be asked: "Just where would mass infection begin?"

To epidemiologists everywhere opportunity will possibly present itself to add considerable knowledge in the solution of this important problem. Probably no group of workers has a greater opportunity. It is the epidemiologist who sees the failures and knows under what conditions they occur. The worker in the laboratory who prepares the vaccine certainly has the right and it is his duty to improve the quality of vaccine as occasion presents. It is believed that in the near future more virulent strains of *B. typhosus* will be used in the preparation of typhoid vaccine. This change has already been made at the Georgia Department of Public Health Laboratory, where formerly the rough strain of Rawlins was employed in the preparation of vaccine.

Fortunately, while the question of the selection of more potent vaccines is being settled, the eradication of typhoid fever may be carried on through other well established methods, which have been effectively put to test in areas where typhoid has become residual. If we keep in mind a principle well recognized in epidemiology that infection is a reaction between the host and organisms and whether clinical infection occurs, is dependent upon two factors, namely: the resistance of the host and the virulence or number of the organisms, we may approach the typhoid problem from another angle. We may attempt to prevent the increase or spread of organisms as well as to prevent their being brought to the individual. With reference to typhoid, this means sanitation and carrier control.

SUMMARY

(1) The long summers and mild winters of Georgia are thought to play a role in the high incidence of typhoid fever cases.

(2) The decreased earning capacity and inability of 70 per cent of Georgia's population, classified as rural, to obtain adequate medical attention and proper instruction in the prevention of typhoid fever is believed to be another important factor in the continued high death rate.

(3) The poor sanitary ratings of households in 80 per cent of the cases, where 74.6 per cent of the cases, both rural and urban, used open privies; where excreta from 40.8 per cent of the cases was dumped on the ground without treatment, and the fact that in 32 households of the series 91, or 42.1 per cent, of the cases occurred, is stressed.

(4) The importance of carrier detection and control is shown. In this series 6 chronic carriers were detected, credited with having caused 36 cases of our series within one year. Carrier years for these carriers total 43 years, during which time it is estimated that they probably caused at least 258 cases of typhoid fever.

(5) The importance of well balanced programs for typhoid control and obliteration is emphasized.

(6) The present status of typhoid vaccine potency is mentioned with the hope that bacteriologists, epidemiologists and public health workers everywhere will lend assistance in the solution of this important problem.

BIBLIOGRAPHY

1. Frost, W. H.: The Water Supply of Williamson, West Virginia, and Its Relation to an Epidemic of Typhoid Fever. Hygienic Laboratory, Bulletin No. 72, Nov., 1910.
2. Arkwright, J. A.: The Value of Different Kinds of Antigens in Prophylactic "Enteric" Vaccine. Jour. Path. & Bact., 30:345-364, 1927.
3. Mallick, M. K.; and McCombs, M. G.: Agglutinogenic Powers of "Rough" and "Smooth" Variants of *B. Typhosus* and Their Mutual Immunological Relationship. Indian. Jour. M. Research, 18:143, July, 1930.
4. Grinnell, F. B.: Comparative Value of Rough and Smooth Strains of *B. Typhosus* in Preparation of Vaccine. Jour. Immunol., 19:457-464, 1930.

DISCUSSION (*Abstract*)

Dr. T. F. Sellers, Atlanta, Ga.—The representative group of 216 cases of typhoid fever studied epidemiologically by Dr. Seckinger does not argue well for the efficacy of typhoid vaccine. Twenty-one cases, or 9.7 per cent, occurred in persons who had received vaccine within one year prior to the onset of the disease. Of this number 5, or 23.8 per cent, died.

The typhoid vaccine manufactured in our laboratories is prepared in accordance with the method outlined some years ago in Bulletin 110 of the U.S.P.H.S. The antigen used was the Rawlins strain which has been used almost universally in this country and in England for the past twenty-five years or more. It is still the official antigen of the U. S. Army Medical School and of most state and commercial laboratories.

As stated in Dr. Seckinger's paper, the work of Arkwright, Mallick and McCombs, and Grinnell shows rather convincingly that those strains of *B. typhosus* producing small smooth colonies on agar surface plates are much more virulent and are much more potent antigens than those producing large rough colonies. Grinnell's study of a large collection of Rawlins cultures demonstrates that most cultures of this strain are typically rough and that vaccines prepared therefrom are not protective against smooth strains in animals, whereas smooth strain vaccines were protective.

Apparently the results of these investigations explain the increasing number of instances of vaccine failure which have been reported to us in the past three or four years. We are accordingly abandoning the Rawlins strain, substituting in its place a recently isolated smooth strain obtained from one of the cases referred to in Dr. Seckinger's paper. All vaccine hereafter distributed will be prepared from a smooth virulent strain. Certain other laboratories have already taken this same step.

I am still a proponent of vaccination and I believe it to be one of the most expedient and valuable aids in the control of typhoid fever. On the other hand, given the most potent vaccine, this control measure will always have its limitations and should be of secondary importance as compared to general sanitation. There will always be reports of vaccine failures in the face of conditions favorable to massive infections, such as now exist in many rural and small town areas of our own and any other states.

We cannot afford to discard vaccination and hence we should leave no stone unturned in the production of as potent a product as possible.

Dr. Joseph W. Mountin, Washington, D. C.—The evidence which Dr. Seckinger has presented suggests that insanitary conditions about the rural homes may be a prominent factor in maintaining the high prevalence of the disease. It is, however, difficult to estimate the importance of sanitation, much less of the several items comprising the whole sanitation program, without knowing the sanitary conditions which might be found on a random sample of the premises. The frequent association of Dr. Seckinger's cases with carriers and persons in the active stages of the disease suggests that something in addition to sanitation will be required for the eradication of the disease.

It is disappointing to learn that typhoid vaccine is not meeting our expectations. It has long been recognized that the vaccine does not always prevent the disease, but most of the evidence I recall at the moment substantiated the common belief that the disease tends to be mild in persons who have been immunized. It is to be hoped that recent advances in bacteriology will enable the laboratories to produce a more potent vaccine.

I am very much surprised to learn from Dr. Seckinger that 4,100 persons who died of disease in Georgia during 1931 were not attended by a physician, and that 70 per cent of the rural people are not in position to employ a physician. Perhaps, as Dr. Seckinger has suggested, this condition in medical economics may in large measure explain the continued high prevalence of

typhoid fever. In any event it is a problem of great magnitude and one which must be taken into account by public health authorities unless there is to be a marked improvement in the underlying economic situation in the near future.

Dr. Seckinger (closing).—It is far easier to immunize against typhoid fever than to discover carriers or to improve sanitation, and we must continue to immunize until sanitation and carrier control programs become well established and effective. However, judging from our experience, it is unfortunate when vaccine therapy is permitted to assume the entire role in an antityphoid program at the expense of sanitation and carrier control methods, a condition which may well obtain unless proper emphasis is continually placed upon all of the well known methods of typhoid fever control.

RADICAL FRONTAL SINUS OPERATION UNDER LOCAL ANESTHESIA*

By GEO. B. COLLIER, B.S., M.D., F.A.C.S.,
New Orleans, La.

When Dr. Lynch, in 1921, presented his method of radical frontal operation he gave to otolaryngologists a technic for which we and the patients with chronic frontal sinusitis should always be deeply grateful. With some essential variations this paper is based upon his valuable work.

I shall give you a few points which I have found valuable and which in my hands have added to the technic. When Dr. Lynch first gave this method to the profession he began his essay by saying, "When all other methods have failed, try this." I watched him for a number of years and assisted him when he did his last frontal sinus operation. In my hands and those of my confreres at the Senses Hospital, New Orleans, the method has given satisfactory results. In his last few years he adopted some points that made the operation appear simpler, but he always did it under general anesthesia, and it was his opinion that it should not ordinarily be done under local.

In 1930, after Simpson and Sanders reported 100 ethmo-frontal operations under local, I was inspired to attempt this method. However, I did not feel that they could have used the real Lynch technic with the small incision which they advocated. After hearing their paper and Dr. Lynch's discussion, I was still more confident that theirs was a modified and not a complete exenteration.

From Dr. Lynch's discussion, I believed that he had the impression that the real operation was of such magnitude that it could not be successfully accomplished under local. Later, when I talked with him, he expressed the belief that in those chronic sufferers for whom this operation was really indicated, general anesthesia should be employed.

Not long after this a patient came to me who had had 9 previous head operations. The nose still had pus on both sides, indicating to me that complete exenteration had not been successful by the intranasal methods employed, though one of the operations had been done by a very skillful rhinologist. As the patient seemed a poor risk for general anesthesia, I decided to try the operation under local.

The patient was a highly temperamental Acadian and I considered him a poor subject for local anesthesia ordinarily. But owing to his general condition, I determined to use it, thinking that even if anesthesia were not complete, it would be better than to subject him to the shock of a general anesthesia. Barbiturates by mouth (two allonal tablets) ¼ grain morphine and 1/150 grain hyoscine were given one hour before the operation, then ¼ grain morphine as the operation began. I used mercurochrome in alcohol-acetone solution over the unshaven eyebrow, down the nose and adjacent tissues, put cocain solution in the eye and closed it with skin clips to protect the cornea. A regular Lynch incision was made, and I was able to remove all of the polyps and mucous membrane in the frontal, completely obliterating the external angle which is very essential, and breaking down all the supra-orbital ethmoid cells that were helping to keep up the discharge and which I could not have removed completely by the intranasal method. The floor of the frontal was also removed. The sphenoid opening was enlarged and the membrane curetted. There was much hyperplasia even though we thought we had done a good sphenoidectomy previously, and I might add, the same thing was true in the ethmoid region, especially over the eye.

I do not believe it is possible to do so complete a sphenoidectomy through the nose as by the external route, where the surgeon has direct vision and can gently remove the membrane. Many cases of chronic hyperplastic ethmoiditis have cells over the orbit which cannot be reached by the most skillful intranasal surgeon. I do not mean to say that there are not cases that can be done successfully by the intranasal route, but we should make the operation suit the patient, not the patient the operation. Study the patient and x-ray plates carefully. When you see supra-orbital cells in a patient who has been subjected to several operations and has good drainage, but still has discharge, pain, hyper-

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plasia and perhaps polyps, admit to yourself that the only way to cure him is by the external route. Sunlight, diet and exercise play a wonderful role in some cases as in those of empyema of the sinuses, but these measures will not cure where the case has gone on to hyperplasia and polypoid degeneration.

I found when I finished that I had done as complete an operation as could possibly have been done under general anesthesia. There was very little hemorrhage. I had not been inconvenienced by the patient's complaining of pain, and I had his cooperation at all times. The patient wished me to do the other side at the same time, which of course I did not do.

On finishing the operation I followed the usual technic, pulling up the orbital periosteum and suturing it with plain catgut to the muscle in the upper border of the incision. However, I took special care not to injure the periosteum in the upper part. I sutured near the periosteum, but was careful not to injure it, also not to elevate it. We believe this decreases the possibility of osteomyelitis. We put another suture near where the trochlear muscle is attached. A rubber tube about one-fourth inch in diameter was inserted through the nose, extending to the external angle of the frontal. Then I put one-inch gauze, impregnated with compound tincture of benzoin against the sphenoid and packed loosely around the tube. We cleansed the skin and surrounding tissues with ether and put in Michel clips approximating the skin as perfectly as possible. A very small piece of gauze was cut to cover the incision and put on with adhesive. The Michel clips were removed from the eye and it was left open; an ice bag was applied, the patient put on back rest and allowed soft food. There was very little edema and he made a speedy and uneventful recovery.

Since this case I have done quite a number under local and so far I have been highly pleased with the results. On two occasions I also did a Caldwell-Luc. I do not recommend doing so much at one sitting usually. A few of the advantages of local anesthesia are: there is less hemorrhage and very little need for ligation. It is certainly much better when the patient is fully able to cooperate with the surgeon, can move his head in any direction; and it is much easier to orient the structures in the nasal cavities.

A few points which I wish to bring out are:

(1) Morphine and hyoscine are given one hour before the operation and repeated just before beginning. If properly administered they will have no unpleasant results.

(2) Use for injection 1 per cent novocaine with 8 or 10 drops of epinephrine to the ounce. We believe the better the anesthesia the less will be the postoperative reaction.

(3) Begin by cocainizing the spheno-palatine ganglion and other intranasal structure with 20 per cent cocaine, to which is added a few drops of epinephrine. We have found that this gives as good anesthesia as the paste and lessens the possibility of an epinephrine membrane. We have not found it necessary to use a postnasal pack as the patient can expectorate any excess blood.

(4) We begin our injection by attempting to enter the posterior palatine foramen. If this is accomplished easily we inject 1 c. c.; otherwise we inject a small amount under the mucous membrane near the foramen.

(5) We then lift the upper lip and with a long needle go in the tissues up near the infra-orbital foramen. The needle can be felt with the finger on the outside. When we feel it in place, we inject a small amount of anesthetic, and as we withdraw the needle we infiltrate some of the tissue.

(6) Next we go in near the vicinity of the posterior upper molar, keeping as near as possible to the periosteum as we go around the posterior border of the superior maxilla above the tuberosity to the pterygo-maxillary fossa, where we inject a small amount. This also helps to block the spheno-palatine ganglion.

(7) Next we infiltrate through the unshaven eyebrow and the nose where we are going to make our incision, a small amount of the solution.

(8) Crosscuts are made before the injection. There is no necessity to inject too much solution and interfere with the normal appearance of the tissues.

CONCLUSIONS

Use plenty of morphine and hyoscine. Do not shave the eyebrow, because the scar will be less noticeable. Be sure to block off with strong novocaine solution. Handle the tissues gently. Make the incision large enough and do not fear the cosmetic results. Be sure to take down all of the floor, obliterate the external angle of the sinus and remove the orbito-ethmoid plate. Leave no overhang or rough crevices.

Make crosscuts on the skin before making the incision. This helps proper approximation on closing.

Always remove the middle turbinate and do a complete exenteration. Suture the periosteum by the method stated. Do not elevate in the upper half. Use Michel clips. Put on a small dressing and remove clips and dressing as soon as possible and let the incision be exposed to the air. This hastens healing. Remove the

gauze from the nose on the second day, and the rubber tube about the fifth. Keep the tube open with a frontal probe if indicated. There is very little postoperative care. Watch the nose and keep down the granulations around the opening into the frontal sinus, and if you have done a complete exenteration you will have a nose free from pus.

We recommend this to you for your frontals and those cases where ethmoidectomy by external route is indicated.

We feel that the quicker we, as rhinologists, realize that this type of case requires radical surgery, the quicker the laymen will discard the idea that chronic sinus trouble is incurable. This method has proven satisfactory in our hands.

DISCUSSION (*Abstract*)

Dr. E. C. Pope, Birmingham, Ala.—The question of anesthesia is too often casually dismissed. We are keenly interested in the choice of operation in each case, and justly so. Always it is our aim so to conduct the operative procedure that the nearest possible restoration to normalcy is obtained. This agreed upon, the same diligence should guide us in the selection of the anesthetic.

Local anesthesia probably dates back to 1884, when Keller gave us cocaine. Since then it has been our sheet anchor in otolaryngology. In 1901, the addition of epinephrine lessened our cocaine fear and undoubtedly saved many lives. Likewise the advent of novocaine settled the ship of anesthesia which was still unsteadily tossing upon the sea of uncertainty.

I have been a student of Skillern, and my observation of external frontal operations has been those in which the Lathrop was done. The two chief objections to Skillern's modification of the Lathrop are that a complete exenteration cannot always be accomplished; secondly, that the opposite sinus is unnecessarily opened. Skillern says: "In spite of this criticism I have never seen the opposite sinus infected. On the contrary, it is aerated more than normally." The Lynch technic parallels Skillern's very closely. The end-results are similar and gratifying. There is no reason why either of these cannot be done under local anesthesia, provided, of course, that cases are properly selected and properly prepared.

I do not quite agree with several points made by the essayist.

(1) The use of hyoscine should be mentioned. A great many operators have a rightful aversion to the drug, also to scopolamine because of the cardiac depressant action. With the amount of morphia used by the essayist, it would seem that massive dosage must be thought of. In cases where additional general anesthesia is required there would probably be additional problems to be considered as compared to cases where a simple preliminary is given.

(2) I have great respect for the interior of the sphenoid sinus. Very often dehiscences are present. To curette in such a condition would certainly invite trouble.

(3) Neither do I see why a Caldwell-Luc cannot be successfully done locally. I have done several and encountered no added difficulty. Certainly this is so where a window resection after the method of Krause has preceded the Caldwell-Luc.

I would like to call your attention to a recent work on local anesthesia of the spheno-palatine ganglion by Dr. E. H. Campbell, of Philadelphia, published in September, 1929. It is an extension of the idea of the late Dr. Grenfield Sluder. The technic is probably practiced by Dr. Collier and is certainly a great aid in all local work where spheno-palatine ganglion anesthesia is desired. A special needle and syringe are devised for this procedure.

Dr. Lillie, of the Mayo Foundation, last year before a sectional meeting of the Triological Society summarized in a very clear manner a number of the problems met with in frontal sinus surgery. He emphasized the human side of our operative decisions as a guide to the operation of choice.

In conclusion, the important points in radical sinus surgery are:

(1) Try to restore normality.

(2) Try to preserve nasal physiology.

(3) Give much thought to the patient's wishes in selection of the type of operation.

(4) Approach radical surgery slowly through avenues of conservatism.

(5) Give local anesthesia a trial, but be careful in the selection of your case.

(6) Interpretation of pathology greatly aids success.

Dr. Homer Dupuy, New Orleans, La.—The point is well taken that, after previous surgery of the sinuses, with continuous pain and unrelieved purulent discharge, with local anesthesia we can work more deliberately and with the patient's cooperation. It seems to me that Dr. Collier has added a new idea in the injection of the palatine nerves. May I suggest that he also inject the supra-orbital nerve? Personally, I have had good results with sodium iso-amylethyl barbiturate (amytal) for preoperative analgesia. Moreover, the barbiturates reduce cocaine poisoning.

For the injections we use 1 per cent, and not infrequently even 2 per cent novocaine. Certainly, we must admit that our locals in head surgery of this extent are not always highly satisfactory. Our art and technic in this respect unquestionably will bear perfecting. This seems a contribution in the right direction.

Dr. R. G. Reaves, Knoxville, Tenn.—A radical fronto-ethmo-sphenoidal operation can be done just as easily and as completely under local anesthesia as under ether by a man who understands local anesthetics.

At the meeting of the American Medical Association in New Orleans in 1920, I read a paper before our Section on nerve blocking for nasal surgery (J.A.M.A., 74:1514, May 29, 1920). I described the technic for injecting the spheno-palatine ganglion through the posterior palatine canal and also the anterior ethmoid nerve through the orbit. It is also possible to go a little farther back and infiltrate in the region of the posterior ethmoidal nerve, which is small. These injections get the nerve supply to the sphenoid, ethmoid and frontal sinuses and also a large part of the external nose on the same side. Inject the supra-orbital nerve and along the line of incision down to the periosteum, and you have anesthesia. I also pack the nose with cotton

saturated with 1 per cent butyn and 1 per cent ephedrine, to which I add a few drops of 1:1000 epinephrine. This aids greatly in controlling the bleeding and the butyn reinforces the nerve blocking. A preoperative hypodermic of morphine and atropine and 3 grains of nembutal is given about 20 minutes before the operation. I do not want the patient asleep, but do not hesitate to give another capsule (1½ grains) of nembutal if needed.

Dr. Collier (closing).—I cannot see how a patient in a serious condition with a nose full of polyps and general constitutional symptoms can be cured by a diet, sunlight, and other palliative treatments. This is a serious condition and demands radical treatment.

If the surgeon does sufficient work and knows his anatomy well, there is no reason to consider this a dangerous operation, unless it be postponed too long.

THE MAINTENANCE DOSAGE OF LIVER ADMINISTERED PARENTERALLY IN THE TREATMENT OF PERNICIOUS ANEMIA*

By JAMES E. SHERMAN, M.D.,†
El Paso, Tex.

Since the first reports have been finished on the treatment of pernicious anemia by the parenteral administration of liver, the question naturally arises as to the maintenance requirements of this form of liver extract. Castle and Taylor,[1] and later Issacs *et al*,[2] have reported in detail the initial amounts of liver necessary to produce a remission. It is felt that their methods, with respect to initial hematopoietic response, cannot be improved upon at the present time. Therefore in this communication we shall deal only with the maintenance requirements of liver. In all but one case, Lilly's liver extract (No. 343 for parenteral use) was used exclusively. In this one exception addisin[3] (a concentrated preparation of gastric juice) was employed in an attempt to obtain a higher hemoglobin and erythrocytic level.

The liver extract was given by deep injection into the gluteal or deltoid muscle. Very little discomfort resulted from the injection if a small amount (1 c. c.) of 1 per cent procaine was given with the liver. In some cases there was a dull ache present for one to two days. The intramuscular was preferred to the intravenous route because for practical purposes it is a simpler method.

The observations on the maintenance dosage of parenteral liver that have been carried on represent approximately 500 injections given during the last eighteen months. Four of the series are presented here as typical examples.

REPORT OF CASES

Case 1.—W. R., an elderly white male, also a diabetic, had been on nine vials of powdered liver extract for two years. He was placed on intramuscular liver, partly due to his antipathy for powdered or whole liver, and also because of its prohibitive cost. On 5 c. c. of parenteral liver given every week his red blood count and hemoglobin fell steadily for five months (*Fig. 1*). He was then given 4 c. c. twice weekly, and in one month his hemoglobin and red count rose rapidly to above its preceding level. Following this he was again placed on his former regime of 5 c. c. a week. During the ensuing 4 months there was a gradual decline to 3,500,000 red cells and 70 per cent hemoglobin. This time the dose was increased to 7 c. c. given once a week, and in 6 weeks' time the red count was 4,500,000 with a corresponding rise in hemoglobin. He has subsequently been carried on this quantity with entirely satisfactory results.

Case 2.—A. C., a white male who gave his age as 79, but who appeared to be in the proximity of 60, was admitted to the psychiatric ward in a semi-conscious state. Due to his extreme pallor he was transferred to the medical service and was found to have a macrocytic anemia. Because of his extremely low red count it was necessary to transfuse him on two successive days, which accounts for the rapid erythrocytic and hemoglobin rise, as seen in *Fig. 2*. On the same days as his transfusions he received 12 c. c. of liver extract intramuscularly. On the fifth day a maximum reticulocyte response was obtained. Twelve weeks later his blood picture was within normal limits. For the greater portion of this period he was given 4 c. c. of liver extract

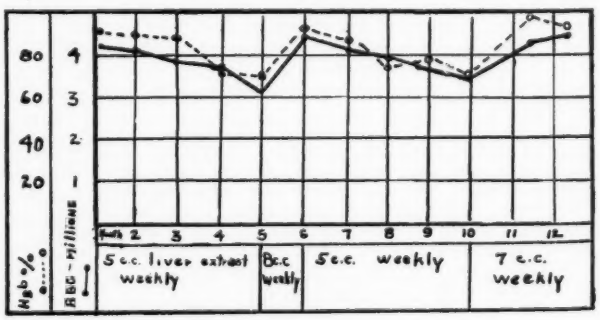

Fig. 1, Case 1
A rapid rise in hemoglobin and erythrocyte count is noted at the fifth month and again at the tenth month.

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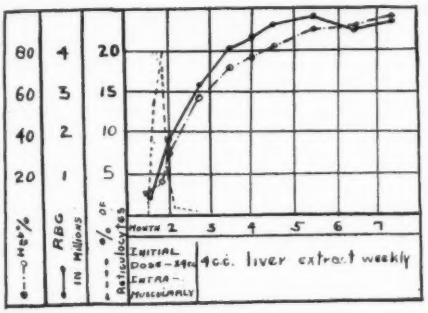

Fig. 2, Case 2

The early increase in red cells and hemoglobin is in some measure due to two blood transfusions. The count leveled off between the fourth and fifth month.

every week. He was kept on the same quantity for the next 4 months and his count varied between 4,400,000 and 4,800,000. The hemoglobin estimation varied between 84 and 96 per cent. His maintenance dose of parenteral liver is apparently 4 c. c. a week.

Case 3.—W. K. was a white man, aged 53. This case is of interest in that after a high red count and hemoglobin determination were obtained they were successfully maintained with 4 c. c. of liver extract a week. The patient received intramuscular liver on admission and obtained an excellent hematopoietic response. During the next two months, on 2 c. c. of liver every other day, the red count rose to 4,100,000 and the hemoglobin to 76 per cent. Further liver therapy produced no increase, despite the fact that the dose was increased to 4 c. c. daily for thirty days. He was then given an intramuscular injection of addisin,[3] equivalent to 300 c. c. of human gastric juice. In approximately two weeks the red blood count was over 5,000,000 and the hemoglobin 88 per cent.

The patient was then placed on a tentative maintenance dose of 4 c. c. a week. This held his red count between 4,700,000 and 5,000,000; his hemoglobin between 88 and 94 per cent. As there was no fall in these values for the next 4 months, it was then assumed that this was his maintenance dose.

Case 4.—W. C. L., a white man, age 59, presented himself with a red blood cell count and hemoglobin not extremely low, as he had been on oral liver (*Fig. 4*). However, he finally acquired such a distaste for liver that he much preferred the disease to the treatment. For an initial dose 20 c. c. were given in the gluteal muscles. Thereafter he received 5 c. c. weekly for 5 months. Inasmuch as there was only a slight response at the end of this period his dosage was increased to 8 c. c. weekly. In 2 months his blood picture had slowly mounted to within normal limits. Thereafter, on the same quantity, his blood count fluctuated in the neighborhood of 4,500,000, the hemoglobin varying between 90 and 96 per cent. The conclu-

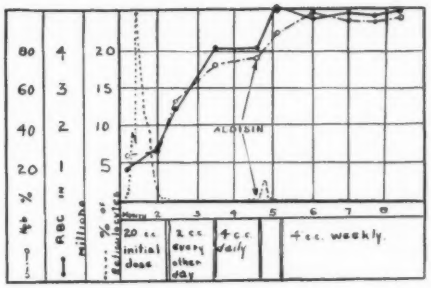

Fig. 3, Case 3

After receiving addisin (concentrated gastric juice), the high hemoglobin and erythrocyte counts were well maintained with 4 c. c. of liver extract weekly.

sion is that the maintenance requirement of this individual is 8 c. c. of liver extract a week.

COMMENT

These four cases are characteristic of a series of ten. It is obvious that there is no standard quantity of liver which will be suitable for all cases, unless, of course, the maximum dosage of 8 c. c. weekly be given. At this time it is not known whether the continual stimulation of the bone marrow by an overdose of a hematopoietic substance would be harmful or not. If we consider the normal mechanism of blood regeneration as a continuous bone marrow activity, then it would seem that an overstimulation of the marrow should be harmless. However, this overdosage should not be necessary, since it is fairly easy to determine the exact maintenance requirement of each individual.

It is interesting to note that *Case 1* is a patient with diabetes and oral sepsis, along with his addisonian anemia. He required a relatively large dose, 7 c. c. a week, for maintenance. *Case 4* (although he had no demonstrable path-

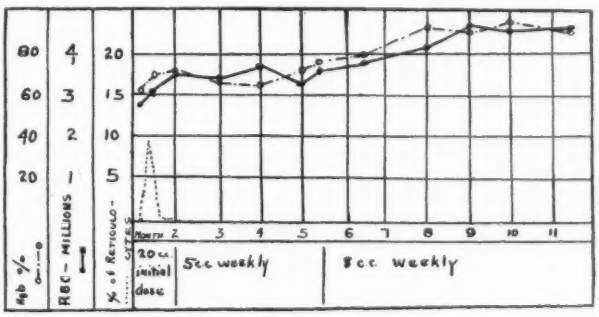

Fig. 4, Case 4

A gradual improvement is noted between the fifth and sixth months which was subsequently retained on 8 c. c. of parenteral liver.

ologic condition) was an extremely active man physically and his requirements of liver extract were large. *Cases 2* and *3* were of sedentary habits. Their maintenance dosage was smaller, 4 c. c. weekly. These observations suggest that pathology and physical activity may play a role in the maintenance requirements of liver extract for a primary anemia.

The rather wide variation in the maintenance dosage might well suggest the presence of a variable factor in the potency of the liver extract. Zerfas[4] attempts to eliminate this variability by standardization of every lot of material against a known case of pernicious anemia. His methods would seem to be of sufficient accuracy to prevent an appreciable variance in the potency of the material. It is clear, however, that there is considerable variation in the maintenance requirement in individual patients.

CONCLUSION

(1) Intramuscular injection of liver extract is a safe and entirely satisfactory method of maintaining a remission in pernicious anemia.

(2) The maintenance requirement varies between 4 and 8 c. c. of liver extract a week.

(3) The maintenance requirement cannot be pre-determined and varies with the pathological and physiological requirements of each individual.†

REFERENCES

1. Castle, W. B.; and Taylor, F. H. L.: J.A.M.A., 96:1198, April 11, 1931.
2. Issacs, R.; Sturgis, C. C.; Goldhauer, S. M.; and Bethell, F. H.: J.A.M.A., 100:629, March 4, 1933.
3. Morris, R. S.; Schiff, L.; Burger, G.; and Sherman, J. E.: Amer. Jour. Med. Sci., 184:778, Dec., 1932.
4. Zerfas, L. G.: Personal communication.

†The author acknowledges with gratitude the generosity of Lilly & Co. in furnishing the material for this investigation.

OBSERVATIONS UPON THE POTENCY OF VARIOUS PROPRIETARY DIGITALIS PREPARATIONS*

By H. B. Haag, M.D.,
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Within recent years several publications have appeared concerning the biological activity of proprietary digitalis preparations. Joachimoglu,[1] as well as Behrens and his associates,[2] employing the frog method of the German pharmacopoeia, found that one preparation might assay many times the potency of another. Similar observations were made by Levy[3] and his co-workers, using the cat method of Hatcher and Brody as the means of standardization, and most recently by Lehman and Hanzlik,[4] who judged the activity by the pigeon procedure of Hanzlik.[5] It appears then that when a group of these digitaloids is assayed by any one method, wide differences in activity are found between the preparations; so much so that there might be actual danger in calculating the clinical dose of one preparation in terms of another. This discrepancy in potency is not necessarily to be ascribed to any dereliction on the part of the manufacturer, although it has been, and justifiably so in some instances.[3,6] A particular preparation might be found to assay satisfactorily according to the procedure selected by the compounder for standardization, and yet be greatly deficient in potency when tested by another method. This situation is to be deplored, and, as has already been mentioned by Levy,[3] should stress the need for the adoption of a universal standard. Inasmuch as the cat method of Hatcher and Brody[7] has been extensively accepted as a desirable means of standardizing digitalis it would appear that this procedure might well be selected as the uniform standard for the assay of digitalis products and, if necessary, be supplemented by the pharmacopoeial frog method, or by the guinea pig method,[8] particularly for the study of absorption.

During the past two or three years we have had occasion to assay a number of commercial preparations of digitalis by the cat method; and the results of these studies are presented here with the view of further stressing the importance, first, for the clinician constantly to bear in mind the fact that vast differences may exist between the physiological activity of the special preparations of digitalis, and hence to caution him against the indiscriminate prescribing of these preparations in the belief that all are of the same potency; and secondly to stress again the necessity for the adoption of a suitable standard assay procedure for all digitalis preparations. There is a growing impression among clinicians that the need for the so-called purified or refined digitalis products is seldom urgent and as a result more and more use is made of the simple galencial preparations: the leaf and the tincture, many samples of which are assayed by the cat method. In these days of stress and strain these efficient, simple preparations should commend themselves if for no other

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reason than their comparative cheapness. It must be confessed, however, that even official tinctures sometimes vary in potency due probably to deterioration;[9] the powdered leaf shows no deterioration after as many as 40 years.[10]

Incidentally, a limited number of experiments in this laboratory indicate that variations in potency are not the only differences which might exist between commercial products. There may be differences in the rate of elimination, stability, absorption, and emetic activity. Our unpublished observations concerning differences in emetic potency substantiate the recent studies of Lehman and Hanzlik.[4]

It might not be inappropriate briefly to outline the cat method of standardization as employed by us in these studies. The digitalis preparations, extracted, if necessary, and diluted with physiological salt solution, were slowly injected into the femoral vein of the etherized cats until death of the animals. Then the weight of the animal in kilograms was divided into the total amount of the preparation, in terms of milligrams or cubic centimeters, necessary to cause death, the resulting figure being the "cat unit" of the particular preparation. A good preparation, as judged by the cat method, is one which will kill one kilogram of cat in amounts of 100 milligrams. For instance, a good tincture is one which has a cat unit of one cubic centimeter and inasmuch as the tincture is a 10 per cent preparation, this volume of the tincture is equivalent to 100 milligrams. As with most biological tests, deviations of about 10 per cent above or below the standard may be regarded as inconsequential from a practical point of view. It is obviously necessary that several cats be employed for each assay, and an average taken of the series. In the assays which we report here, with the exception of one, from five to seven cats were used for each specimen. In the one exception sufficient of the material was available for but four animals. The preparations were usually purchased directly from the manufacturer or, as in a few cases, from the wholesaler.

Table 1

PROPRIETARY "A"

Type Preparation	C. C. of Liquid or No. Tablets Equivalent to One Cat Unit	Per Cent Deviation from Standard Cat Unit
Tablet (oral)	2.63	minus 23.7
Tablet (hypo)*	2.88	minus 65.3
Vial (oral)	1.13	minus 11.5
Ampoules	1.04	minus 3.9
Ampoules	0.924	plus 8.2

*Average of 4 cats.

With the exception of the tablets this series of digitalis preparations could be considered as measuring up to the potency of a good tincture. It is particularly unfortunate, however, that the hypodermic tablets, which might be considered as emergency preparations, should be so deficient in strength. Tests of two different lots of ampoules gave satisfactory concordant results.

Table 2

PROPRIETARY "B"

Type Preparation	C. C. of Liquid or No. Tablets Equivalent to One Cat Unit	Per Cent Deviation from Standard Cat Unit
Tablet (oral)	2.38	minus 58.0
Vial (oral)	1.99	minus 49.8
Ampoules	1.8	minus 44.5
Ampoules	1.8	minus 44.5

This specialty can at least claim some uniformity, although every one of the preparations is distinctly inferior in potency.

Table 3

PROPRIETARY "C"

Type Preparation	C. C. of Liquid or No. Tablets Equivalent to One Cat Unit	Per Cent Deviation from Standard Cat Unit
Tablet (oral)	0.78	plus 28.2
Vial (oral)	1.19	minus 16.0

Table 4

PROPRIETARY "D"

Type Preparation	No. Tablets Equivalent to One Cat Unit	Per Cent Deviation from Standard Cat Unit
Tablet (oral)	1.85	plus 62.1

This would appear to be a dangerous preparation, although from the label one would infer that the preparation was no more potent than a standard leaf. It is easily conceivable that near calamity might occur if a physician had

Table 5

PROPRIETARY "E"

Type Preparation	C. C. Liquid Equivalent to One Cat Unit	Per Cent Deviation from Standard Cat Unit
Vial (oral)	0.81	plus 23.4
Ampoules	2.51	minus 60.2

been accustomed to employing tablets of proprietary "B" and then changed to the administration of the "D" tablets in similar amounts.

This is an extreme case in which preparations under the same proprietary name varied tremendously in potency. This indicates that it might even be dangerous for a clinician to calculate the dose of one type of proprietary preparation in terms of another made by the same manufacturer, a point that has previously been stressed by Levy, Bruenn, and Ellis.[3]

Table 6

PROPRIETARY "F"

Type Preparation	C. C. Liquid Equivalent to One Cat Unit	Per Cent Deviation from Standard Cat Unit
Ampoules	0.76	plus 31.5

CONCLUSION

From a study of the above tables one is impressed by several facts. First, there is a wide difference in the activity of the various proprietary digitalis preparations when tested by one method. Secondly, there may be danger in changing from one preparation to another during the administration of digitalis. Thirdly, preparations manufactured by the same concern and under the identical trade name may vary enormously in potency. Fourthly, there is an eminent need for the adoption of a universal standard for digitalis preparations.

BIBLIOGRAPHY

1. Joachimoglu, G.: Pharmakologische Auswertung einiger Digitalis-Spezialpraparate. Deut. med. Wchnschr., 54:1585, 1928.
2. Behrens, B.; Gros, O.: and Hildebrandt, F.: Die Auswertung von Digitalis-praparatien. Munchen. med. Wchnschr., 78:2067, 1931.
3. Levy, Robert L.; Bruenn, Howard G.; and Ellis, Samuel S.: Variations in Potency of Certain Commercial Preparations of Digitalis. Amer. Heart Jour., 8:226, 1932.
4. Lehman, A. J.; and Kanzlik, P. J.: Comparative Potency of Some Digitalis Specialties. Jour. Pharmacol. & Exper. Therap., 48:151, 1933.
5. Hanzlik, P. J.: A New Method of Estimating the Potency of Digitalis. Pigeon-emesis. Jour. Pharmacol. & Exper. Therap., 25:363, 1929.
6. Wyckoff, J.; and Gold, H.: A Dangerous Preparation of Digitalis. J.A.M.A., 94:627, 1930.
7. Hatcher, R. A.; and Brody, J. G.: The Biological Standardization of Drugs. Amer. Jour. Pharm., 82:360, 1910.
8. Reed, E. D.; and Vanderkleed, C. E.: The Standardization of Preparations of Digitalis by Physiological and Chemical Means. Amer. Jour. Pharm., 80:110, 1908.
9. Haag, H. B.; and Jarrett, L. E.: The Variability of Pharmaceutical Preparations. Jour. Amer. Pharm. Ass'n., 20:474, 1931.
10. Haag, H. B.; and Hatcher, R. A.: The Stability of Digitalis and Its Preparations. J.A.M.A., 93:26, 1929.

A CONSIDERATION OF OUR PRESENT KNOWLEDGE CONCERNING THE PANCREATIC FERMENTS*

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Within a few years, accurate studies of the pancreatic enzymes, in man and animal, have resulted in invaluable knowledge of the activity of these ferments, both in health and disease.

Pancreatic ferments have been shown to respond in varying manner to different foodstuffs, proving a qualitative relationship between the enzymes, which change from the normal in pancreatic disease. They are now known to alter their concentrations under certain physiologic changes in the duodenum and following the administration of different drugs.

PANCREATIC FERMENTS IN FASTING DUODENAL CONTENTS

In the normal man, investigators,[12] studying the fasting duodenal contents, found enzymatic activity considerably below that observed after meals. Following the method of McClure and Reynolds,[19] and confirming the duodenal location of the tube by fluoroscopy, we studied 7 normal men, taking fractional specimens of fluid after the subjects had fasted for 15 hours. Quantities were derived from analyses of duodenal fluids that were neutral or alkaline (pH 7.0 or less). The average activity is: lipase, 1.3 mils; amylase, 1.9 mg.; protease, 2.2 mms. All specimens registering an acid hydrogen-ion concentration (pH lower than 7.0) were found to have less ferment activity than the maximum for that particular individual. A slightly acid reaction, pH 6.6, was accompanied by a somewhat diminished activity of the contents, while pH 6 was sufficiently acid to inhibit enzyme activity. We, therefore, concluded that the action of the ferments depends to a large degree on the hydrion concentration of the duodenal juice.

Another author[25] has concluded from experiments on animals that, with conditions as nearly normal as possible, the pancreatic secretion of the dog is continuous during fasting.

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*From the Department of Medicine, Tulane University Medical School.

"At any rate," he says, "all explanations of continuous secretion as an abnormal effect due to lack of neutralization of gastric hydrochloric acid become untenable."

PANCREATIC FERMENTS IN DUODENAL CONTENTS AFTER A TEST MEAL

Experimenters,[12] observing subjects fed milk and cottage cheese, or one of the milk meals, published findings substantially in agreement with ours.

Fortunately, for us, we were able to study the duodenal contents of a most cooperative negro patient in whom a duodenal fistula was present.[20] Collection of the duodenal contents of the patient was done by inserting the tip of an ordinary glass syringe just within the opening of the fistula. Examination of the fasting duodenal contents confirmed our findings in normal men.

Examination of the duodenal contents during digestion were most interesting. The ingestion of protein, fat, and carbohydrate, in the form of milk, resulted in stimulation of the protease and lipase. The increased activity was noted one-half hour after the subject took the last portion of milk. The ingestion of fat, in the form of cream, brought about a very distinct stimulation of the amylase and the protease within 26 minutes after taking the first portion. About 20 minutes later (16 minutes after the second portion of cream), there was a marked increase in the lipase concentration. The ingestion of protein and a very small amount of fat—eight egg whites and one yolk boiled two minutes—produced striking results. All three of the pancreatic enzymes assumed the maximum concentrations. In one hour and 17 minutes after the eggs were taken, both the amylase and the protease had almost doubled their concentrations, and the lipolytic activity rose from 0 to 1.5 c.c. The ingestion of starch did not, in spite of the psychologic effect, for it was appetizing to the patient, show any stimulation of the production of amylase and but little more on the protease.

Others[5] are in agreement with us. They studied the human pancreatic secretion in a case of pancreatic cyst with fistula and report no constancy in the ratio lipase to trypsin to amylase secreted. They state that others (Farrell and Ivy, 1926) did not find any qualitative difference in the enzymatic content of the pancreatic excretion when dogs with pancreatic fistulas were put on extreme fat, carbohydrate, or protein diets. As in the carbohydrate fed our patient with duodenal fistula, Kahn and Klein found that efforts to induce a "psychic secretion" were unsuccessful.

McClure and his co-worker[11] reported on 6 normal young men who presented no history of gastro-intestinal disease. They found that water was a less potent stimulant of external pancreatic secretion than food substances. They indicated that the particular feature in producing pancreatic stimulation was absorption of the products of digestion, rather than the acidity of the gastric chyme. Quoting Wohlgemuth's experiments, McClure says the former proved that the ingestion of food consisting largely of fat brought about pancreatic secretion showing the greatest degree of all types of enzyme action, while the secretion following a carbohydrate meal showed the least. Carbohydrate meals, however, were followed by the secretion of the largest amounts of pancreatic juice, while fatty foods produced the least. The work of Pawlow, Wohlgemuth, and others proved that the secretion of pancreatic juice during digestion is in some way governed by the food ingestion.

In their studies, McClure and his co-workers, using pure food substances, found that the lipolytic activity of duodenal contents was always greater after the ingestion of olive oil than after the ingestion of protein or carbohydrate food. Proteolytic and amylolytic activities were almost always greater after the ingestion of olive oil. From this they inferred that olive oil was a more powerful stimulant to the activity of the external secretory function of the pancreas than were the other types of foods.

Our studies of the patient with fistula were not made with pure types of foods. After the ingestion of cream, the amylase and protease showed stimulation, followed by stimulation of the lipase concentration. After the ingestion of protein and a small amount of fat, all three of the enzymes assumed the maximum concentrations noted in any of our experiments on the subjects. Perhaps the discrepancy between our findings and those of McClure may be explained by the differences in foods used in experimentation.

At any rate we are all in agreement on the following:

Pancreatic secretion is continuous during fasting.

Enzymatic activity is below the standard in the fasting duodenum.

The presence of food in the intestines stimulates the activity of the external secretory function of the pancreas.

The secretion of pancreatic juices during digestion is governed by the types of food ingested.

PANCREATIC ACTIVITY IN DISEASE

Since the digestive functions of the pancreas are fairly well established in normal man, study of pancreatic function may be of value in the diagnosis of disease and may supplement our knowledge of therapeusis in certain other diseases.

Chronic Pulmonary Tuberculosis.—The first symptoms in chronic pulmonary tuberculosis are evidenced by functional disturbances in the digestive tract.[7] Because of anorexia, nausea, vomiting, constipation, or diarrhea, the sufferer consults the physician. A review of the findings of Lombardo and Anselmo in 15 patients who suffered from pulmonary affections and were under treatment may be instructive. The lipolytic enzyme was deficient in 11 of the 15 cases observed. Lombardo and Ilardi found that in 9 out of 10 patients the lipolytic property was diminished. They feel that the disturbances in the digestive tract must be attributed to toxemia, since these symptoms appear at the same time as fever, denutrition, tachycardia, so forth, and because these disturbances diminish or disappear entirely when the other symptoms due to toxemia diminish or disappear.

Diabetes.—In a study of 8 diabetic patients and 10 normal,[3] it was found that amylase in the blood serum of diabetic patients was much less than normal. The same applies to amylase found in the urine, duodenal juice, and in the feces, although in these the diminution was not quite so marked as in the blood serum. The small amount of amylase was not in direct proportion to the degree of pancreatic lesions. The amount of trypsin was nearly normal, while lipase was diminished. Others[8 23] have reported diminished enzymatic activities in severe diabetes.

Cirrhosis of the Liver.—Morbidity of the liver, especially cirrhosis, is frequently accompanied by lesions of the pancreas.[16] The resultant diminution of enzymatic activity is in proportion to the degree of pathology present. In a study of 4 cases of cirrhosis, the proteolytic property was found diminished in all cases between one-third and one-fourth. In 3 grave cases, the lipolytic ferment was diminished in about the same percentages, and in the fourth, which was not an advanced case, the lipase was about normal. In 3 cases, the amylolytic property was normal; in a grave case, the ferment was reduced. Others[9] have found mild pancreatic dysfunction in the large majority of patients with hepatic cirrhosis.

Gastric Achylia.—Because water, fat, and various products of fat metabolism act as stimulants, it has been concluded[17] that the pancreas may function normally in the absence of hydrochloric acid; the function of the pancreas is not impaired in cases of gastric achylia; the amount of ferments in the duodenum in gastric achylia is, in some cases, higher than normal, probably due to compensatory function of the intestines. McClure and Jones[10] reached this same conclusion. In our own work on fasting duodenal contents,[19] there was unappreciable diminution in the lipase and protease content.

Sprue.—In discussing sprue, I must mention Dr. T. R. Brown, who was a pioneer in the investigation of pancreatic digestion in sprue. Although Wood[24] says,

> "The character of the sprue stool is distinctive . . . It shows such a pancreatic deficiency. The fat content is abnormal."

I am afraid that he will not find many to agree with him. In 1927, we reported[18] 4 cases of sprue, stating that the external pancreatic function is not altered in this disease. From the Far East, it is reported[22] that the pancreas, so far as its external secretion is concerned, functions normally in sprue. The commentators base their conclusion on experiments carried out on 17 cases of typical clinical sprue (on milk diet) with 17 bed cases on milk diet, patients who were confined for such complaints as aortic aneurysm, hemiplegia, and rheumatic arthritis. They report that the neutral fat and split fat ratios agree with similar ratios of sprue stools.

Pathology of the Biliary Tract.—It has been observed[10] that obstruction to the pancreas is accompanied by enzymatic activity much below the minimum normal level. Piersol and Bockus[15] report that the average amount of each enzyme in cholecystitis is reduced to more than 50 per cent of the normal amounts. They say that 85 per cent of all cases of gallbladder disease had a reduction of over 50 per cent in the amount of one or more of the enzymes. Lipase was more constantly reduced. Eight cases of cholelithiasis showed a reduction below normal in the quantity of enzymes, corresponding closely to the reduction in the general cholecystitis cases. In 8 cases of chronic cholecystitis,[19] we found diminished lipolytic activity in the fasting duodenal contents. Six cases showed diminished amylolytic activity, and 7 diminished proteolytic activity. Others[23] report diminished enzy-

matic activities in cases of cholecystitic hepatitis with jaundice, carcinoma of the liver, and with jaundice. In 24 cases of chronic cholecystitis without jaundice, they report diminished enzymatic activity in only 3 cases. Another investigator[2] reports 18 patients in whom diminished pancreatic activity was associated with disease of the gallbladder or liver.

Diseases of the Pancreas.—In acute pancreatic necrosis, American workers[8 10] found a marked decrease in enzymatic activities. Johns,[4] in his experiments, found severe necrosis associated with a striking decrease of the amylolytic and lipolytic properties. Slight necrosis was accompanied by considerably increased diastase values, while lipase values were increased, normal, or decreased. McClure found that slight involvement, due to acute pancreatitis, pancreatic cyst, or diabetes mellitus, did not affect enzymatic activities of the duodenal contents. In two cases of chronic pancreatitis, we[19] found lowered activity of all three enzymes, and in a case of chronic pancreatitis associated with fatty diarrhea, we found lowered lipolytic and proteolytic activities.

Grossly fatty stools,[8] in the absence of jaundice, are indicative of extensive disease of the pancreas or of marked pancreatic dysfunction, such as occurs in congenital steatorrhea. If creatorrhea and aztorrhea are also present, then the condition is almost certainly one of very far advanced pancreatic insufficiency. In a case of creatorrhea, following cholecystectomy, which we studied, the lipolytic enzyme was much diminished in fasting duodenal contents, and the proteolytic was much below the normal standard. Hypopancreatism associated with cancer of the gallbladder and liver showed marked diminution of all three enzymes. However, others[23] have reported diminished enzymatic activities in a case with no clinical evidence of hypopancorrhea or disturbances of the stool.

EFFECT OF DRUGS ON THE PANCREAS

Insulin.—The therapeutic effect of insulin has been favorably commented upon in cases in which there is no histologic alteration of the acinous part of the pancreas.[6] In malnutrition, 18 patients who had been injected with insulin showed measurable increase in the concentration of pancreatic ferments recovered from the fasting duodenum. To accompany this effect, the function of the biliary tract, with external pancreatic functions, was improved. Studies of the stools before and following insulin therapy gave results that showed a direct parallel between the more complete digestion and assimilation of food elements and the increased concentration of pancreatic ferments.

Carusi* referred to the work of others who separately found a marked decrease in the activity of pancreatic ferment in diabetes, and of Monteleone's use of insulin as the cause of considerable increase of enzymatic activity. Leuders and Watson deduced that the improvement in those suffering from malnutrition, who improved upon insulin therapy, was due, in part, to the stimulating effect of insulin on external pancreatic secretion and bile, and in part to a resulting normal digestion and assimilation of aliment.

Histamine appears to have no stimulative action whatever on the pancreas.[14] In fact, in their experiments on children, Neale and Klumpp showed there is a diminution in the normal resting secretion of the gland following injection of histamine. Failure to promote pancreatic secretion includes both volume of pancreatic flow and enzyme content.

"It is a remarkable fact" they say, "that histamine acts so specifically upon the gastric glands and fails to promote secretion in other glands concerned with alimentation and digestion."

Carusi[1] found an increase in the quantity of the ferments, in his experiments on dogs, but no modifications in the quality. However, he says the increase of the pancreatic ferments was very slight in comparison with the normal secretion.

In a series of observations made on the digestive power of raw beef pancreas and of four commercial pancreatic preparations,[21] ***in vitro*** all preparations showed activation of the proteolytic and lipolytic actions, although one seemed lacking in ability to split cooked starch under the experimental conditions. *In vivo,* the most striking effect was a marked increase in proteolytic activity, although in certain preparations a moderate increase in the ability of the duodenal secretion to split starch and emulsified fat was noted.

DETERMINATION OF PANCREATIC DYSFUNCTION

In evaluating the function of the pancreas, study of the three ferments should be supplemented by examination of the feces. Shtchur-

*Carusi, R.: Concerning Pancreatic Secretions. Policlin., Roma, 37: (sez. med.), 90, Feb., 1930.

off[17] says this is essential. He mentions a case in which increased peristalsis was responsible for the presence of creatorrhea, and another in which the amount of ferments was high, but many muscular fibers were present in the feces; evidently the function of the pancreas was diminished here. Although, as in the fatty stools of sprue, the feces may not denote pathology of the pancreas, an experience such as that of Shtchuroff indicates that fecal examination is important when correlated with examination of the duodenal contents.

SUMMARY

The determinations of pancreatic digestion from analyses of duodenal contents have proven the necessity of examining all three enzymes.

Under normal conditions, even in the fasting state, the duodenal juice contains a secretion with appreciable activity of pancreatic enzymes.

The enzymes differ individually in their responses to certain ingested food substances. It is most noticeable that, in addition to being the most stable, the starch splitting principle shows little inclination to respond to the ingestion of starch. Protein more than any other type of food apparently excites all three enzymes.

The application of this knowledge to the study of pancreatic disease and its treatment is essential. Enzymes may be considerably diminished but one does not depend upon a diarrhea as a necessary symptom. When there are clinical manifestations of inhibition of pancreatic digestion, one is able to infer that certain enzymes are at fault and the proper diet to compensate for this loss must be instituted. Pancreatic disease is usually associated with diminution of enzymes.

It is essential that study of the pancreatic ferments be supplemented by examination of the feces.

REFERENCES

1. Carusi, R.: Pancreatic Secretion After the Injection of Histamine. Policlin., Roma, 37 (sez. med.), 289-297, June 1, 1930.
2. Hollander, Edward: Clinical Method for the Quantitative Determination of Pancreatic Ferments in Duodenal Contents. Jour. Lab. and Clin. Med., 16:460-465, Feb., 1931.
3. Iacono, G.: Research on the External Secretion of the Pancreas in Diabetes. Policlin., Roma, 39: (sez. prat.), 133-136, Jan. 25, 1932.
4. Jorns, G.: Study of Ferments in the Presence of Affections of the Pancreas. Arch. f. klin. Chir., 168:657-671, 1931.
5. Kahn, J.; and Klein, H. M.: Human Pancreatic Secretion Studied from a Case of Pancreatic Cyst with Fistula. Amer. Jour. Med. Sci., 184:503-511, Oct., 1932.
6. Leuders, C. W.; and Watson, M. E.: Effect of Insulin Therapy on Pancreatic Enzymes in Malnutrition. Arch. Int. Med., 49:330-342, Feb., 1932.
7. Lombardo, M.; and Anselmo, E.: External Secretion of the Pancreas in Chronic Pulmonary Tuberculosis. Ann. di clin. med. sper., Palermo, 19:360-373, 1929.
8. McClure, C. W.: Studies on the Diagnosis of Pancreatic Disturbances. Ann. Int. Med., 3:557-568, 1929.
9. McClure, C. W.; and Huntsinger, M. E.: Pathologic-Physiologic Studies on Changes in the External Secretions of the Pancreas and Liver. New England Jour. Med., 206:507-515, March 10, 1932.
10. McClure, C. W.; and Jones, C. M.: Studies in Pancreatic Function: Enzyme Concentration of Duodenal Contents in Pathologic Conditions Involving the Pancreas, Liver, and Stomach. Boston Med. & Surg. Jour., clxxxvii, 909-923, Dec. 14, 1922.
11. McClure, C. W.; and Wetmore, A. S.: Studies in Pancreatic Function: Enzyme Concentration of Duodenal Contents in the Ingestion of Pure Foodstuffs and Food Mixtures by Normal Man. Boston Med. & Surg. Jour., 187:882-895, 1922.
12. McClure, C. W.; Wetmore, A. S.: and Reynolds, L.: Physical Characters and Enzymatic Activities of Duodenal Contents. J.A.M.A., 77:1468-1469, 1921.
13. Ibid: Arch. Int. Med., 20:706-715, 1921.
14. Neale, A. V.; and Klumpp, T. G.: Action of Histamine on the Pancreas. Jour. Clin. Invest., 9:197-208, Oct., 1930.
15. Piersol, G. M.; and Bockus, H. L.: Pancreatic Enzymes in Cholecystitis. Arch. Int. Med., 35:204-213, 1925.
16. Romeo, G.: External Pancreatic Secretion in Hepatic Cirrhosis. Gazz. internaz. med. e. chir., Napoli, 37:515-516, Aug. 15, 1930.
17. Shtchuroff: External Secretion of the Pancreas in Gastric Achylia. Klin. Med., 7:1366-1370, 1929.
18. Silverman, D. N.: Sprue: Extended Studies with Especial Reference to Pancreatic Digestion. Sou. Med. Jour., 20: 762-765, 1927.
19. Silverman, D. N.; and Denis, W.: Studies of the Pancreatic Enzymes in Fasting Duodenal Contents. Sou. Med. Jour., 17:549-552, 1924.
20. Idem: Influence of Food Intake on the Enzymatic Concentration of Human Intestinal Contents Obtained from a Duodenal Fistula. Arch. Int. Med., 35:357-361, 1925.
21. Silverman, D. N.; Denis, W.; and Leche, S.: Study of the Effect Produced on the Enzyme Concentration of the Duodenum by the Oral Administration of Certain Commercial Pancreatic Preparations. Amer. Jour. Med. Sci., 170:727, 1925.
22. Sokhey, S. S.; and Malandkar, M. H.: Pancreatic Function in Sprue. Far East. A. Trop. Med., Tr. 7th Cong., 2:267-268, 1927.
23. Wadsworth, J. V.; and Aaron, A. H.: Observations on the Enzymatic Activities of the Duodenal Contents. Amer. Jour. Surg., 7:480-486, 1929.
24. Wood, E. J.: Sprue. Nelson's Loose Leaf Living Medicine, 5:465-470.
25. Zucker, T. F.; Newburger, P. G.; and Berg, B. N.: Further Studies on Continuous Secretion of the Pancreas. Proc. Soc. Exper. Biol. & Med., 29:745-746, 1923.

DISCUSSION (*Abstract*)

Papers of Drs. Eusterman and Wilbur, and Dr. Silverman.

[Paper of Drs. Eusterman and Wilbur, "Primary Malignant Neoplasm of the Pancreas: A Clinical Study of Eight$_{IV}$-Eight Verified Cases without Jaundice," was published in October issue, pages 875-883.]

Dr. Lewellys F. Barker, Baltimore, Md.—From the standpoint of general practice, most help, perhaps, will be derived from:

(1) The knowledge of the special characteristics of pain of pancreatic origin (maximal in the epigastrium, sometimes with radiation from the center of the upper abdomen to the left along the rib margins into the region of the spleen or of the left kidney and back and the half girdle zone of hyperalgesia that tends to persist); (2) the palpation of the pancreatic region for swelling or hardening of the pancreas (in patients who are not too obese); (3) the study of the pancreatic ferments in the duodenal contents and the urine and the examination of the stools for bulk and for undigested fat, starch, and muscle-fibres; (4) the determination of glucose tolerance, the detection of primary and secondary diabetes mellitus, and the recognition of the hypoglycemic attacks that may accompany fat necroses of the pancreas, on the one hand, or certain

tumors of the tissue of the islands of Langerhans, on the other; and (5) the observation of peculiar attacks of gaseous distention, with anorexia and nausea, attacks that are due to sudden paresis of the musculature of the intestinal walls, suggestive of paralytic ileus.

If we will keep ever in mind the major pancreatic syndromes, characterized by special pain distribution, fatty stools, palpable mass, glycosuria, and partial paralysis of the intestinal walls, we shall much more often than formerly recognize the minor pancreatic syndromes that are very frequently observable clinically, especially in patients who have earlier suffered from gallstones or from disease of the gallbladder. Internists have been taught by pathological anatomists and by abdominal surgeons that they had frequently failed to recognize pancreatic maladies when they undoubtedly existed. Today, the internist is in a better position to detect the occurrence of these minor pancreatopathies and to institute the curative and prophylactic measures that have been found to be helpful.

Among the more interesting features of the newer work upon the pancreas, I regard (1) the confirmation of R. R. Bensley's studies of the finer histology of the islands and of island tumors, (2) the recognition of the syndrome of hyperinsulinism and the possibility of surgical relief in certain cases of hyperinsulinism, (3) the demonstration by H. M. Evans and his associates of the antagonistic effect of the growth hormone of the hypophysis upon the islets, (4) the effect of insulin treatment upon the contents of the bile and the pancreatic juice and upon the assimilative power of the body cells in cases of profound undernutrition, and (5) the bringing of the proof that the pancreas manufactures a peculiar imidazol-containing substance (kallikrein, or padutin) that circulates in the blood in an inactive form and is excreted in the urine, a substance that when injected intramuscularly dilates the peripheral arterioles and promises to be useful in the treatment of intermittent claudication, of Buerger's disease, and, perhaps, of angina pectoris. Time will not permit me to enter upon further discussion of these new matters. Many of them are so very new that we should be cautious against overenthusiasm with regard to practical application until further studies have been made and larger clinical experience has been gained. But, in any case, the progress of knowledge concerning the pancreas has of late become most intriguing. The pancreas, as one of the contributors to the symposium has intimated, offers a definite challenge that invites us to a long period of further intensive investigative work.

Dr. Evarts A. Graham, St. Louis, Mo.—I should like to mention briefly the question of tumors of the Islands of Langerhans. We all owe much to Dr. Seale Harris for calling our attention in 1924 to the possibility of dysinsulinism or spontaneous hyperinsulinism. Russell Wilder, of the Mayo Clinic, in his study of a case in 1927 showed that hyperinsulinism or dysinsulinism could be associated with a carcinoma of the Islands of Langerhans. Since that report there has been a growing interest in this subject. The interest has, however, centered more particularly upon tumors of the islet tissue which can be removed. These tumors have been seldom recognized at autopsy. For example Warren, in 1926, could find only 16 cases of so-called adenomas of the islet tissue reported in the literature but he was able to add 4 more from his own autopsy experience. Recently at the Barnes Hospital we have encountered 6 cases of proven tumor of the islet tissue. In 3 of these surgical removal was successfully carried out and in the 3 other cases tumors were found at autopsy. In addition to our 3 cases of successful operative removal, 2 other successful operations have been recorded. A number of other cases are recorded in the literature in which an operation was performed for the removal of a supposed tumor but in which no tumor was found. In some of these a considerable part of the pancreas was removed but with rather indifferent results.

The symptoms of an active adenoma of the islet tissue are chiefly those of a pronounced hypoglycemia. The patient complains of muscular weakness, sweating, tremors, and there is usually a history of periods of loss of consciousness with epileptiform convulsions. The nervous and mental symptoms are so pronounced that most of the patients with this condition have been previously diagnosed as cases of true epilepsy. The most marked symptoms are likely to occur early in the morning or, in other words, after a period of fasting and in some cases the patients have observed that the attacks can be prevented by taking food, especially food which contains sugar. An examination of the blood immediately before the occurrence of the severe symptoms has invariably shown a low blood sugar, usually in the neighborhood of 35 mg. per cent.

There is probably nothing more dramatic in the whole field of surgery than the amazing results which follow immediately after the removal of one of these active tumors. The blood sugar promptly is restored to a normal level and remains there. The patient's symptoms promptly disappear. The tumors are so small that they may be easily overlooked. Often they are no larger than 1 cm. in diameter and they are recognizable chiefly because they are of a slightly different color from the rest of the pancreatic tissue. One of our patients had 2 tumors. The first one, which was located on the anterior surface of the pancreas was removed and the patient's symptoms temporarily improved. Later, however, his symptoms returned again and at another operation a second tumor was found imbedded in the substance of the pancreas detectable only by palpation and presenting itself towards the posterior aspect of the pancreas. The pancreas was mobilized in order to expose its posterior aspect and the tumor was removed from the posterior surface of the organ. This is the first case in which 2 tumors have been removed. The patient promptly made an uneventful recovery from his symptoms.

There are several confusing and difficult features concerning the recognition of these tumors. One is that other conditions are well known to cause hypoglycemia; another difficulty is that if one of these small tumors happens to be imbedded in the substance of the pancreas it may be difficult, if not impossible, to recognize it at operation. Also we have seen a few cases of hypoglycemia in children in which a spontaneous recovery occurred without any demonstrable evidence of pathological changes in any of the endocrine glands.

Dr. Eusterman (closing).—So far, our own experience with pancreatic functional tests has not been impressive. Soon after McClure, Wetmore, and their associates reported the results of their researches, we carried out their tests for enzymatic activity in a considerable series of cases, with indifferent results. Later on, somewhat intrigued by the observations of Elxman on quantitative determination of blood amylase in subacute and chronic pancreatic diseases, my associates,

Wakefield, McCaughan, and the late Dr. McVicar, made similar determinations on 52 patients, 20 of these being known to have pancreatic tumors. They found the percentage of increased blood amylase to be too small to warrant adoption of the method as a routine diagnostic procedure.

As regards steatorrhea, curiously enough we find striking examples of excess fecal fat in cases of idiopathic steatorrhea (so-called nontropical sprue, celiac disease of adults, and so forth) more often than in pancreatic carcinoma, at least more frequently than in the non-icteric cases. Now, following Cherry and Crandall, we are experimenting with blood lipase, and have hopes that this procedure may prove of value. If operation, necropsy, or duodenal drainage disclose complete occlusion of the main pancreatic duct, as a rule we will previously have obtained striking laboratory and clinical evidence of insufficiency of the external pancreatic secretion. But in the absence of mechanical closure, a small portion of the gland may function sufficiently to compensate for much destruction.

In a recent paper on jaundice, cited in the bibliography of this paper, I called attention to a group of cases in which the icterus, pain, and so forth, could be ascribed only to chronic pancreatitis, in view of the findings at operation and the favorable postoperative course of events. In these cases the involvement of the head of the organ was especially marked, the "tumor-like chronic pancreatitis" producing icterus by compression. This form of disease has been described by Kauffman in his text on pathology, and by various continental and American surgeons. The chronic fibrous interstitial form may be primary, as in congenital syphilis, but is usually secondary to infection of long standing, and calculi in the biliary tract and pancreatic ducts. A focal form of pancreatitis is seen in some cases, in which perforating peptic ulcer involves the substance of the gland.

A final therapeutic point in the treatment of the severe itching of jaundice: we have found that patients usually get marked relief from oral administration of gynergen (ergotamine tartrate), coupled with external application to the areas affected of a lotion of lime water and olive oil.

ABLATIO PLACENTAE*

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Ablatio, partial or complete separation of the normally implanted placenta, occurs as a comparatively frequent accident in the last weeks of pregnancy and in the course of labor. It is one of the gravest conditions met with in obstetrics, for it is often attended with alarming hemorrhage, shock and collapse; and the fetal mortality is from 50 to 90 per cent.

To Rigsby in 1775 is due the credit of the first satisfactory differential diagnosis between antepartum hemorrhage due to placenta previa and premature separation of the normally situated placenta, and of designating the hemorrhage due to premature separation as accidental, in contradistinction to the unavoidable hemorrhage associated with the former condition.

R. W. Holmes, in an excellent study of this condition in 1901, further emphasized the frequency and the clinical importance of this condition and suggested the name ablatio placentae.

"Utero-placental apoplexy" is an entirely separate entity and a diagnosis can be made only at laparotomy or autopsy. The condition is one to which too little attention has been given by obstetricians; its frequency has been greatly underestimated; its mortality has been judged too high, and its treatment is still a moot question.

INCIDENCE

Ablatio, according to our cases in the John Sealy Hospital, is more common than placenta previa. From January, 1923, to October 1, 1932, the records of our Maternity Service showed 31 cases of premature separation of the placenta in a total of 3,750 labors, approximately one in 121 labors. The frequency of premature separation of the normally implanted placenta cannot be expressed in satisfactory terms, but has been variously estimated at from 1 in 94 to 1 in 894 labors. Holmes says that it occurs as a pathological entity in 1 out of every 200 cases, and clinically, in 1 out of every 500 cases.

Williams states that in the last 2,000 cases delivered in his service at the Johns Hopkins Hospital prior to July, 1915, 17 cases of premature separation were noted, but only one example of concealed hemorrhage occurred in a series of 15,000 labors. Couvelaire's utero-placental apoplexy no doubt occurs much more often than appears in the literature.

Harrar found only one case in 100,000 deliveries, although he performed only 7 cesarean sections in his 264 cases of abruptio placentae.

We are of the opinion that many cases of partial separation with concealed hemorrhage are missed, owing to careless observation, and that many of the cases that are diagnosed as partial placenta previa, because of the bleeding at or near term, or during labor, are really premature separation.

ETIOLOGY

The primary cause of ablatio placentae is not certainly known, but the following causes which

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Table 1
FREQUENCY AND MORTALITY

Name	Total Deliveries	Cases Ablatio Placentae	Incidence	Percentage	Percentage Maternal Mortality	Percentage Fetal Mortality
Bartholomew	9,208	61	1:150	0.66	6.5	83.5
Brodhead	16,500	34	1:485	0.20	26.4	85.3
Davis & McGee	40,000	164	1:244	0.41	7.3	59.7
Goethals	12,032	128	1:94	1.06	8.6	61.5
Fitzgibbon	55,000	155	1:478	0.20	9.5	
Holmes		21	1:200 to 1:500		9.5	
Harrar	100,000	254	1:395	0.25	8.66	62.2
O'Connor		37			2.6	
Polak	4,878	16	1:305	0.32	6.2	87.5
Williams	9,000	57	1:157	0.63	7.5	72.5
Robinson (John Sealy Hosp.)	3,750	31	1:121	0.82	6.5	65.

may be considered as exciting or as predisposing have been mentioned: traumatism, violent emotions, and excessive dilatation of the uterus due to hydramnios or twin pregnancy. The sudden emptying of the uterus in a polyhydramnion or the delivery of the first baby in a multiple pregnancy may interfere with the normal uterine contraction there by decreasing the retroplacental area favoring premature separation. Shortness of the cord represents another mechanical cause, but it is generally believed that the importance of this factor has been greatly magnified. Essen-Moeller found that traction on the cord will rupture it before it will loosen the placenta.

Nephritis, toxemia, eclampsia, syphilis and endometritis have also been invoked as etiologic factors. Some observers believe that premature separation does not occur in true eclampsia, though the uterus is frequently in tonic spasm. In contrast, it is relatively common in the chronic nephritic patient. According to the late Dr. Polak, uterine torsion is probably the next most common predisposing factor. This opinion is based upon the clinical fact that the incidence has diminished by the use of the knee chest position. Holmes, in his article in 1901, declared that endometritis was the most fruitful cause. Multiparity would appear to be a predisposing cause, only 19.2 per cent of the cases collected by the above writer having occurred in primiparae. Endometrial disease is a more common cause of abortion and placenta previa than it is of premature separation, though there can be no doubt that it figures in the etiology of ablatio, and, furthermore, multiparity favors endometrial hyperplasia. I am quite sure that pituitary extract is a cause of premature separation. Under such circumstances the baby is born with the placenta trailing along almost immediately behind. The infant is delivered in beginning asphyxia and the physician congratulates himself that he administered the pituitrin at the opportune moment, when, as a matter of fact, the infant's condition is due to the partial separation of the placenta plus the shutting off of the blood supply due to the severe contractions induced by the drug.

In the outline of the causes given above, syphilis, nephritis and toxemias of pregnancy may be classed under the heading of "toxic type," and as such will be discussed under the cases reported.

Considered from an etiologic standpoint, I believe with Williamson that there are only two types of premature placental separation, one of which is the "traumatic type." In this group are included those cases which give a definite history of trauma, as well as those in which there is placental separation without demonstrable cause. The other group, which is by far the larger and more important, is nearly always associated with toxemias, and so may be termed the "toxic type."

TIME OF OCCURRENCE

Polak states that the majority of the accidents have occurred in women between 25 and 35 years of age, who had an antepartum history of toxemia. In our 31 cases of ablatio placentae (the youngest was 16 and the oldest 40 years of age, an average of 28 years) fifteen cases occurred in patients from sixteen to twenty-four years of age; 12 cases in patients from twenty-five to thirty-four years of age, and 4 cases in patients from thirty-five to forty years of age. There were 9 primiparae and 22 multiparae. Twelve cases occurred during the ninth month or at term, 10 during the eighth, and 9 during the seventh month.

Toxemia, as indicated by albuminuria, hypertension or previous toxic symptoms, was found in 14 cases or one-half the entire number. In one patient, a short cord; in 6 syphilis; in 1 hydramnios, and in 5 trauma appeared to be the etiologic factor. In 4 cases there was no apparent cause. There were two cases of eclampsia.

The placenta may be partially or wholly separated. The point and degree of separation have considerable bearing on the amount of blood the patient loses and the severity of her symp-

toms; consequently, they must also have some bearing on the prognosis and form of treatment one would resort to. The macroscopical appearance of the uterus presents a very striking picture in this condition. The whole organ may take on a bluish, bluish black, or purplish discoloration throughout, from the presence of the effused blood into its walls or under the peritoneum, or one-half may appear normal and the opposite portion show the characteristic discoloration. The placenta, with the exception of the infarcts and the compressed zone, corresponding to the area of the retro-placental clot, has shown an absence of pathology.

DIAGNOSIS

Early and positive diagnosis of ablatio placenta is, of course, absolutely essential to the successful management of the case. Procrastination will lead to fatal results. Ascertain the present condition of your patient and find out, if possible, what has been done before you arrived on the scene and how much blood loss there has been. One woman may be able to lose, say, 40 ounces of blood and not go into lethal collapse, whereas 10 ounces may mean profound shock and sometimes death to another.

In a woman in the last months of pregnancy, who has probably shown signs of toxemia with or without nephritic symptoms, the onset is usually abrupt, the severity depending upon the amount of separation of the placenta. She complains of a sudden pain of a colicky nature, and soon shows sign of acute anemia, followed by those of shock due to the sudden distention of the uterus. A bloody discharge may or may not appear. On examination the uterus will be found to be larger than would be expected, very sensitive or tender, and of a peculiar ligneous consistency. Marked uterine tenderness and tenderness extending laterally over the region of the broad ligaments may signify utero-placental apoplexy. (The baby is always dead in complete abruptio placentae.) It is difficult to map out the fetus and its heart sounds are rarely heard, while the examining finger in the vagina detects no placenta. With these signs present there should be no difficulty in differentiating between ablatio placentae, placenta previa, and rupture of the uterus.

PROGNOSIS

The outlook is, of course, always much worse for the child. The fetal mortality varies from 60 to 95 per cent, chiefly from asphyxia due to interference with the utero-placental circulation. Our fetal death rate was 65 per cent (including one twin).

TABULATION OF 31 SEPARATION CASES

Incidence 31 in 3,750 Consecutive Labors

Primipara	9
Multipara	22
Mortality	
Maternal, 6.5 per cent	2
Fetal, 65 per cent	20
Period of Gestation	
At term	9
Ninth month	3
Eighth month	10
Seventh month	9
Method of Delivery	
Spontaneous (eight deaths)	12
Version and extraction (five deaths)	5
Mid-forceps (one death)	4
Cesarean section (five deaths)	9
Hysterectomy (one death)	1
Etiology	
Nephritic	12
Eclampsia	2
Syphilis	6
Trauma	5
Hydramnios	1
Short cord	1
Cause unknown	4
Presentation	
Vertex	22
Breech	7
Vertex-breech (one dead)	1
Shoulder	1

The mother's chances are very uncertain and are dependent upon many factors: the amount and rapidity of blood loss, shock, the condition of the cervix, and finally, the treatment. Only two mothers died; 29 survived, a mortality of 6.5 per cent.

TREATMENT

A review of the literature reveals the great divergence of opinion as to the proper treatment of this serious obstetrical complication.

The treatment depends upon the amount of hemorrhage, external or concealed, the amount of toxemia, and the dilatation of the cervix. The treatment has been classified as follows:

(1) Watchful expectancy, which includes such measures as rupture of the membranes, the use of an abdominal binder, pituitrin, morphine, intravenous or subcutaneous glucose or saline solution to combat shock and transfusion for the anemia; (2) conservative interference, which includes the use of the dilating bag (Dr. Lee's) to induce labor, or low forceps or breech extraction; (3) accouchement forcé, which includes manual dilatation of the cervix, internal version and extraction or difficult forceps delivery; and (4) laparotrachelotomy under local anesthesia with or without hysterectomy or vaginal hysterotomy.

When the separation is partial and the hemorrhage is not severe, the patient should be kept in bed, morphine given for relaxation and labor allowed to take its natural course. If she is a multipara, a greater opportunity is afforded for conservatism than if she is a primipara.

In cases of severe hemorrhage, the patient should be placed in the Sim's position and the vagina tightly packed with gauze, or a bag (Dr. Geo. H. Lee's) placed in the cervix and the operation completed with forceps or by version. Any additional trauma such as manual dilatation of the cervix or a difficult forceps delivery may precipitate a severe degree of shock which may be fatal. One of the deaths in our cases occurred from shock after some manual dilatation and forceps delivery. In those cases, especially in primiparae, in which the cervix is tight and symptoms of concealed hemorrhage are present (in the patients in whom a toxemic uteroplacental apoplexy can be diagnosed) the only treatment is surgical, preferably the low cervical type or laparotrachelotomy, if at all possible under local anesthesia. The advisability of hysterectomy will depend on the ability of the uterine musculature to contract and control the bleeding. Whenever there is any doubt as to this ability on the part of the uterus to take hold of the situation it had better be sacrificed. While it is not always necessary to do a hysterectomy in all cases of utero-placental apoplexy, it is often necessary.

No one thing has contributed more to the successful outcome in ablatio placentae than blood transfusion, so that in all cases, as soon as the diagnosis is established, the mother should be grouped as to her blood and a satisfactory donor held in readiness.

CASES

Case 1.—Mrs. M. W., age 30 years, a quadripara, at term, was admitted on January 10, 1927, at noon, suffering with severe pains in the uterus. In the upper and right portion there was an area which very perceptibly bulged from the contour of the uterus (retroplacental). She had been having uterine contractions and gave a history of having struck herself against a door-facing two days before. There was no external bleeding. Morphia was given and an ice bag applied over the swelling. The fetal heart sound could not be located and no fetal movements could be felt. She was delivered of a dead child weighing 3,628 grams at 11:30 p. m. The placenta very promptly followed delivery of the child; the maternal surface contained several large clots, probably each as large as a grape fruit, and in addition there was quite a large amount of clotted blood. The patient had no hemorrhage following the third stage and had a normal puerperium. This case illustrates the conservative treatment in rather a severe traumatic type of ablatio.

Case 2.—G. B., colored, age 20 years, para 2, was admitted to the John Sealy Hospital on the afternoon of May 14, 1923. She had been having cramping pains since some time in the forenoon, with a flow of blood from the vagina. No fetal movements had been felt since the day before, and no fetal heart sounds could be heard. On vaginal examination the cervix was soft and dilated about 4 cm. and the head presented. The placenta could not be felt through the cervix. There was slight hemorrhage during labor, preceding delivery and considerable bleeding followed the expulsion of the baby.

Many dark blood clots were discharged from the uterus, which were evidently due to premature separation of the placenta, which had probably occurred in the afternoon of the day before. The placenta showed the picture of ablatio placentae. The blood Wassermann was 4 plus and the blood chemistry showed: total non-protein nitrogen 25.1 mg. per 100 c. c. creatinine, 1.2 mg. and uric acid 2.1 mg.

Case 3.—Mrs. C. H. W., age 32 years, an octipara, about nine months pregnant, was admitted to the obstetric service, John Sealy Hospital, August 12, 1930, about 8:00 a. m., following profuse vaginal bleeding. There was acute pain in the uterus, vaginal bleeding, and nausea. Her blood pressure was 124/78. She was taken at once to the operating room and delivered by manual dilatation and extraction of a dead male twin, which presented by the breech. The placenta could not be felt through the cervix and followed immediately the delivery of the child, with old blood clots. The second baby was alive, a male weighing 2,551 grams, and presented by the vertex. The blood showed: red cells, 1,300,000; hemoglobin, 14 per cent; white cells, 11,500; polymorphonuclears, 90 per cent; and lymphocytes, 10 per cent. The urine showed a heavy ring of albumen, many finely granular, coarsely granular and hyaline casts. The blood chemistry two days after delivery showed: urea nitrogen, 50 mg. per 100 c. c., uric acid 10.1 mg., and creatinine 4.2 mg. There was some difficulty in finding a donor, but on July 16 (four days after delivery) she was given 900 c. c. of citrated blood, and made a very satisfactory recovery.

The same patient was admitted on March 10, 1932, in the eighth month of her ninth pregnancy. She had begun to bleed about 2:00 a. m., but did not enter the ward until 5:00 a. m. She was immediately packed. Her blood pressure was 100/66 and her pulse 104. No fetal heart sounds could be heard and the placenta could not be located when the tampon was applied. At 10:30 a. m. the packing was removed and forceps applied to the head in right occipito-anterior position. The vagina was full of blood clots and the uterus distended with blood. A dead fetus was delivered, the placenta following immediately. There was no further hemorrhage.

Urinalysis showed albumen and fine granular casts. The blood count was 2,400,000 red cells and 90 per cent polymorphonuclears. The blood Wassermann was negative and her convalescence was without incident.

This case illustrates the "toxic type" with complete separation in two instances. She has been sterilized (hysterectomy) and her physical condition is excellent.

Case 4.—Mrs. C. R., age 36 years, in her ninth pregnancy, with labor due April 6, 1923, was admitted on February 10, 1923, at 4:00 p. m. to the John Sealy

Hospital, *in extremis*. She had been dizzy frequently during the previous few months, and on the afternoon of February 4 had fallen in her yard. After the fall she had had extreme pain in the abdomen and back, and there was moderate bleeding. On admission, the patient was very pale, partially comatose, and crying out at intervals from the intense pain. Her blood pressure was 70/40, her pulse very weak, and she was dyspneic. The uterus was hard, rigid and distended, and painful on manipulation. No fetal parts were palpable or heart sounds audible. The cervix was dilated about the size of a dollar and was very thick. A portion of the placenta could be felt through the cervix and the vertex presented. An emergency blood count showed: 736,000 red cells and 20 per cent hemoglobin. Catheterized urine (twelve ounces) showed 4 plus albumen and many fine, coarse and granular casts. There was no bleeding from the vagina.

The diagnosis was premature separation of the placenta and prolapse (no doubt most of the recorded cases are really instances of placenta previa, although such an accident may occur even when the placenta is inserted normally, prolapse of the placenta Münchmeyer). The vagina was packed tightly with gauze in the Sims position. A hypodermoclysis of 1,000 c. c. was given at 7:20 p. m.; at 9:20 p. m. 1,000 c. c. of citrated blood. Her blood pressure was 118/60, pulse 90, and temperature 98. She was given morphine and fluids during the night. At 10:20 a. m. the following day, the vaginal tampon was removed and a large size Lee's bag placed in the cervix. At 12:20 p. m. the bag was expelled, the membranes ruptured, and at 12:50 p. m. a seven and one-half months' dead fetus was delivered with mid-forceps. The placenta was covered with clotted blood and a large amount of dark blood clots followed. Ergot and pituitrin were given. The blood pressure after delivery was 98/50. At 3:30 p. m. she was given 800 c. c. of blood by transfusion.

The blood chemistry on a specimen taken two days after admission was reported as follows: chlorides 450 mg. per 100 c. c; total nonprotein nitrogen 48 mg. per 100 c. c.; urea nitrogen, 33.3 mg.; uric acid, 3.84 mg.; creatinine, 3 mg.; and sugar 100 mg.

Frequent urinalyses were made; one on February 26 was negative for albumen, sugar and casts. A blood count on the same date showed: 1,632,000 red cells and 40 per cent hemoglobin. The patient was discharged March 5, 1923, in fair condition.

This case illustrates conservative treatment and interference (with repeated blood transfusions) in a rather severe type, both traumatic and nephritic.

Case 5.—Mrs. R. M. J., age 18 years, a primipara, was admitted to the obstetrical service of John Sealy Hospital July 18, 1929, about 6:30 a. m., in convulsions. One-half grain of morphia was given. Two ounces of urine per catheter were reported loaded with albumen and casts. Vaginal examination revealed a firm, undilated cervix. The uterus had the peculiar ligneous feel spoken of by Williams, and the patient showed signs of severe pain on manipulations. The fetal heart could not be heard.

Delivery was by section under spinal anesthesia, 3 c. c. of a 5 per cent novocain solution being used. The uterus was found filled with dark blood and clots; the placenta was completely detached, and a dead fetus of approximately eight and one-half months' gestation was delivered. A supravaginal hysterectomy was done because of the condition of the uterus, hemorrhagic uterus. We were unable to secure any urine following the operation. As the patient was in convulsions and coma from the time of entering the ward until her death, no history of the case could be obtained.

This was a case of utero-placental apoplexy with concealed hemorrhage associated with acute and severe toxemia, namely, eclampsia.

CONCLUSIONS

(1) Ablatio placentae is more frequent than is commonly believed.

(2) A pregnancy toxemia, chronic nephritis, is the most constant predisposing cause.

(3) The diagnosis is readily made from the history and symptom-complex.

(4) The prognosis depends largely on an early diagnosis, gravity of the case and treatment instituted.

(5) Treatment depends upon the type of case and the amount of cervical dilatation. Mild cases are treated by the conservative plan; severe cases vaginally, if the condition of the cervix permits. If the cervix is tight cesarean is indicated, followed by hysterectomy, if the uterus remains flabby and fails to contract.

(6) Blood transfusion is of utmost importance and local or spinal anesthesia is indicated when toxemia is present in operative deliveries.

I wish to express my sincere appreciation for the excellent help of Dr. J. Valton Sessums, Resident in Obstetrics and Gynecology, John Sealy Hospital, in going over our case records for this paper.

REFERENCES

Bartholomew, R. A.: Premature Separation of Placenta. Amer. Jour. Obst. & Gyn., 23:818, 1929.
Brodhead, G. L.: Accidental Hemorrhage: Report of 34 Cases. New York Med. Jour., March, 1927.
Couvelaire, A.: Amer. degynec et Obstet., 8:1911, 1912.
Davis, M. E.; and McGee, W. B.: Abruptio Placentae. Surg., Gyn. & Obst., 53:768-779, 1931.
Essen-Moeller: L'hemorrhage, retro placentaire. Arch. Mens. d'obstet. et de gynec., Paris, 4:145, 1913.
Forsett: Jour. Mo. State Med. Soc., 19:223, 1922.
Goethals, T. R.: Premature Separation of Placenta and Statistical Review. Amer. Jour. Obst. & Gyn., 15:627, 1928.
Harrar, J. A.: Accidental Hemorrhage. Bull. Lying-In Hosp., New York, 11:151, 1917.
Harrision: Va. Med. Jour., March, 1920.
Hofbauer, J.: Experimental Studies on Toxemias of Pregnancy. Amer. Jour. Obst. & Gyn., 12:2, 1926.
Holmes, R. W.: Amer. Jour. Obst., 2:762, 1901.
Lucas, J. F.: Ablatio Placentae. So. Med. Jour., 25:1055, 1932.
O'Connor, J. W.: Premature Separation of Normally Implanted Placenta. New England Jour. Med., 199:1248, 1928.
Polak, J. O.: Accidental Hemorrhages. Amer. Jour. Obst. & Gyn., 21:218, 1931.
Scott, R. A.: Premature Separation of Placenta. Surg., Gyn. & Obst., 37:450, 1924.
Snowden: J.A.M.A., 76:1066, April, 1921.
Williamson: Surg., Gyn. & Obst., 21:54, 1919.
Williams, J. W.: Text Book of Obstetrics, 6th Edition, chapters on Toxemia and Eclampsia.

U. S. National Bank Building

THE EFFECT OF DIET ON THE WORM BURDEN OF CHILDREN INFECTED WITH NECATOR AMERICANUS AND ASCARIS LUMBRICOIDES*

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This study was undertaken to determine the effect of a well balanced diet on the worm burden of children infected with *Necator americanus* and *Ascaris lumbricoides*.

It has been shown by Foster and Cort[1] that diet influences susceptibility of dogs to hookworm infection. Dogs which had become resistant to hookworm infection became susceptible again when placed on a deficient diet. Such dogs when placed back on a good diet recovered their resistance to infection. The deficient diet was poor in protein and lacking in all the vitamins and important minerals.

During the progress of this investigation Keller[2] reported on the reduction of the worm burden of individuals without the use of anthelmintics. His results show that under environmental conditions which are not suitable for transmission of intestinal parasites, the worm burden of infected individuals was markedly reduced without treatment.

METHODS

In this investigation three subjects were available. Two subjects, M. P. and B. P., were observed over a period of nine months, and subject D. B. was observed over a period of four months. The study was divided into two periods; during the first period of four months the children were kept at the county detention home. This period served as the control period. The food during this time was wholesome; however, milk, fresh vegetables and fruit were lacking in the diets. During the second period of five months the children, M. P. and B. P., were kept in the home of the county welfare officer. Here the diets were improved. Milk, fresh vegetables, fruit and cod liver oil were provided daily. This period served as the experimental period. Precautions were taken to prevent re-infection; however, the children played on sand lots and no assurance against possible re-infection could be given.

The intensity of the infection was followed by ova counts of three specimens each week, when they could be obtained, according to the methods of Stoll.[3] The average of three specimens was used for a study of the change in worm burden over these two periods. As pointed out by Stoll,[4] "Averaging three days' output of eggs removes most of the inequalities in measuring the daily number of eggs."

Counts were made in this manner for four months while the children were at the county detention home. In this way the effect of an inadequate diet on the worm burden could be demonstrated. During the experimental period the ova counts were made three times each week as in the preceding four months. The weekly averages were taken over a period of three months, after which the counting was discontinued for six weeks. Weekly counts were again made for the following three weeks. In all cases, as a basis for comparison the weekly average was used. From these data the average by month was calculated. There was one stool per day in all instances except during an intestinal upset. The stools were well formed in all specimens except three.

These data show the effect of diet on the worm burden of children. Further, these subjects furnish an opportunity to check the accuracy of the dilution egg count method of Stoll.

As shown by Stoll and Hausheer,[5] most individuals, even those who are accustomed to the microscope, failed to count all ova until some skill had been secured in making these counts. It took a training period covering about fifty slides, made from the same dilution repeated for four different specimens, before one worker counted consistently as many eggs as could be demonstrated by the other on the identical slide.

Table 1

SUCCESSIVE SLIDES COUNTED FOR EIGHT DILUTIONS OF ONE SPECIMEN

Dilution	Ova per Slide Slide Number					Av. of Slides	Av. of High-low
	1	2	3	4	5		
1	11	14	12	15		13.0	13.0
2	12	16	12	14	12	13.3	14.0
3	14	12	16	18		15.0	15.0
4	15	14	12	12	13	13.2	13.5
5	11	12	14	16		13.2	13.5
6	12	11	12	14	16	13.0	13.5
7	13	14	16	15	17	15.0	15.0
8	16	12	13	13	14	13.6	14.0
Average						13.7	14.0

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*From the Division of Nutrition, Department of Home Economics, Agricultural Experiment Station, University of Florida.

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In order to check the variation in the number of ova in aliquot portions from the same dilution tube, each worker counted four or five slides from each dilution. The determination of the relationship of different slide counts from the same dilution tube is one means of checking the accuracy of the Stoll dilution method. In *Table 1* is shown the number of ova from four or five slides for eight dilutions of the same specimen which have been counted by each worker. In this table are given the ova per slide, the average for all slides, and the average of the high-low count for each dilution. These findings show that the average of the slides of one dilution is well within less than 5 per cent of the average of the high-low counts for all slides. From these results it can be seen that this method is sufficiently reliable for following the change in worm burden when an average of four or more counts from the same dilution is used.

DISCUSSION

In this study the worm burden of these subjects was followed by weekly averages of the counts and from this the average by month was determined. In *Fig. 1* are shown the averages for each week. The data show the variations in the weekly averages and also the trend from week to week. The monthly averages were calculated from these data.

CONTROL PERIOD

During the first four months of the experiment the children were on an inadequate diet. The worm burden for this period is given by monthly averages in *Fig. 2*. Since the slide preparations revealed ova of two distinct parasites, *Necator americanus* and *Ascaris lumbricoides*, counts for each were made separately. Keller[2] has shown that there is a great difference in the rate of elimination of these two parasites, ascaris infection being lost more readily than hookworm infection. This is borne out from the data on these subjects.

Necator Americanus.—As shown in *Fig. 2*, the hookworm burden of subject B. P. maintained a fairly constant level for the first four months of the experiment, being slightly higher in July than in April, indicating no decrease in worm burden on the control diet. Subject M. P. was observed over the same period and showed a slight decrease in worm burden. In the case of subject D. B., no pronounced change occurred in the number of ova for this period.

Ascaris Lumbricoides.—The ova counts for subject B. P. show a slight decrease in intensity

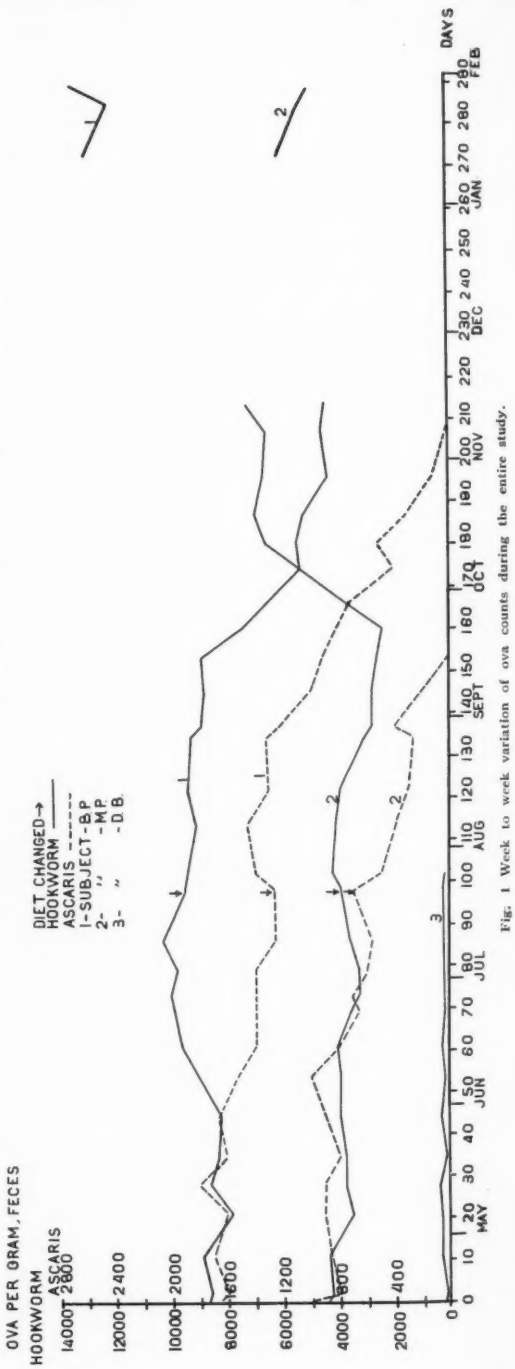

Fig. 1 Week to week variation of ova counts during the entire study.

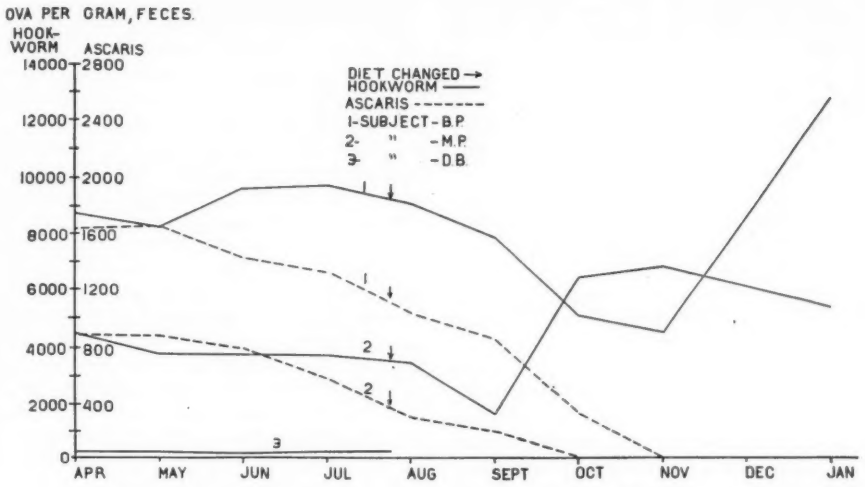

Fig. 2

Comparison of the ova counts during the control period with the ova counts during the experimental period. The arrow marks the point when the diet was improved.

of infection during the control period, as shown in *Fig. 2*. The same result was observed for subject M. P. Subject D. B. was free from ascaris infection.

EXPERIMENTAL PERIOD

Beginning with the last week in July, the diets of B. P. and M. P. were improved. They ate three meals a day with the family of the welfare officer and in addition received a weekly supplement of two dozen eggs, 24 large cans of evaporated milk, and fresh fruit in abundance. Each subject received 4 c. c. cod liver oil three times a day. In *Fig. 2* are given the monthly averages of the counts made after the children were placed on the improved diet.

Necator Americanus.—No significant difference can be seen, as shown by *Fig. 1* and *Fig. 2*, in the counts of subject B. P. for the first two months following the improved diet; however, a marked drop occurred during the third month. During the next month, also, the count was much lower than the average count for the first months, showing a definite decrease in worm burden. At this time subject B. P. developed a severe intestinal disturbance with diarrhea. No counts were made during the next five weeks. When the counting was resumed, the worm burden had increased to a higher level than at any time during the entire experiment, apparently due to reinfection. In the case of subject M. P. no change was noted after the first month on the improved diet. During the next month there was an appreciable drop. At this time subject M. P. developed definite symptoms of a re-infection, and by the third month of the experimental period the count was higher than at any time during the control period. During the last month a slight drop was observed, but not enough to be conclusive.

Ascaris Lumbricoides.—During the experimental period subject B. P. showed a consistent decrease in the number of ascaris ova, being most marked after the first two months on the improved diet, and during the third month the infection was entirely lost. Subject M. P. showed a marked drop in ascaris ova following the improved diet as shown by *Fig. 1* and *Fig. 2*, and within two months no ascaris ova could be found.

SUMMARY

The method of Stoll for making ova counts has been found to be accurate to within less than 5 per cent, and has been shown to be a satisfactory method for determining the worm burden of infected individuals.

The reduction in incidence was 100 per cent for ascaris and the trend was towards reduction for hookworm. In the one instance there was a marked reduction in the hookworm ova count following the improvement in diet, while in the other case the change was less pronounced.

REFERENCES

1. Foster, A. O.; and Cort, W. W.: The Relation of Diet to the Susceptibility of Dogs to *Ancylostoma Caninum*. Amer. Jour. Hyg., 16:582-601, 1932.

Fig. 1 Week to week variation of ova counts during the entire study.

2. Stoll, N. R.; and Hausheer, W. C.: Concerning Two Options in Dilution Egg Counting: Small Drop and Displacement. Amer. Jour. Hyg., 6:134-145, 1926.
3. Keller, H. E.: *Ascaris Lumbricoides:* Loss of Infection Without Treatment. J.A.M.A., 97:1299-1300, 1931.
4. Stoll, N. R.: The Significance of Egg Count Data in *Necator Americanus* Infection. Amer. Jour. Hyg., 4:466-500, 1924.
5. Stoll, N. R.; and Hausheer, W. C.: Accuracy in the Dilution Egg Counting Method. Amer. Jour. Hyg., 4:80-133, 1926.

THE OPPORTUNITY FOR PARASITOLOGY IN THE MEDICAL SCHOOLS OF THE SOUTH*

By ERNEST CARROLL FAUST, A.B., M.A., PH.D.,**
New Orleans, La.

Throughout the greater part of the southern United States the physician is confronted with amebiasis, malaria, hookworm disease and other infections caused by protozoal and metazoal parasites, organisms all belonging to the animal kingdom. Furthermore, typhus, tularemia and relapsing fever are now not infrequently observed in our area, while yellow fever and dengue have not been forgotten. All of these latter diseases are transmitted by insects or other arthropods, also members of the animal kingdom. In addition to our native population there is the constant influx of peoples coming from Mexico, Central and South America, many of whom have been exposed to exogenous infections or possibly to more virulent strains of diseases endemic in the South. Reckoning only amebiasis (acute, chronic and carrier state) malaria and hookworm infection, it is safe to say that not less than 20 to 25 per cent of the patients seen in our area harbor these infections; in some regions the percentage is very much higher. As physicians are becoming more and more conscious of the need for accurate diagnosis of diseases of animal parasite origin, clinical laboratories are becoming better manned and more proficient in making such diagnoses. The physician himself should, however, not only recognize the importance of the diagnoses, but should have an intelligent grasp of the role which these parasites play as pathogens in the human body, how the infection is acquired and how it can be controlled in the individual and in the community. This calls for adequate consideration of the subject of animal parasitology in the medical school curriculum.

*Read in Section on Medical Education, Southern Medical Association, Twenty-Sixth Annual Meeting, Birmingham, Alabama, November 15-18, 1932.

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THE FUNCTION OF PARASITOLOGY IN THE MEDICAL SCHOOL

If my previous premises are granted, and I am sure that this Section on Medical Education will readily appreciate the situation as it has been outlined, it is necessary to consider how, when, and to what extent the subject should be offered so that the medical student will obtain a proper grasp of the subject, without infringing on the time carefully treasured by teachers of other subjects in the medical school. In the first place, it seems most appropriate that the student should be introduced to parasitology at the beginning of his clinical studies, after he has had his bacteriology and introductory pathology, with the aim in view that he can utilize it during his clinical years. During an experience of twenty years I have taught parasitology to the premedical student, to the student in the second, third and fourth years and to more than a hundred graduate physicians. The premedical student is too immature and too far removed from the practical importance of the field to gain an adequate grasp of it. The preclinical student is also inadequately prepared for an understanding of the pathological and clinical aspects of the problems involved. The senior medical student is interested in parasitology, and usually has the necessary background, but feels that he could utilize it to better advantage if he had obtained his information a year earlier. The practicing physician rarely has time enough to take a full course in the subject or has become so "rusty" in some of his laboratory technic and manipulations after years of clinical work that valuable time is lost in re-learning the procedure which is familiar to every undergraduate clinical student. It, therefore, seems most appropriate to provide time for the subject during the first clinical year.

It is highly desirable that the subject of medical parasitology should be taught separate and apart from clinical microscopy, since its function is to present a comprehensive view of the animal parasites in their relationship to human disease rather than exclusively a course in diagnostics. In order that this end may be achieved every medical school in the South should have a well trained medical parasitologist, who should be responsible for teaching parasitology and correlating this subject with the other courses in the curriculum. Necessarily he will have other important duties, but foremost and above all else he should stress the importance of his subject and present it in such a way that both students and staff will demand it as an integral part of the curriculum. During the past four

years in Tulane Medical School we have required parasitology for fourth year students. By a happy rearrangement of schedules the subject is now being given to the third year group. This has meant that the present fourth year men were not required to take the course. So insistent has been their demand for it that a special consolidated course has been arranged for them. If properly presented the clinical student wants parasitology as a part of his curriculum.

Wherever possible, parasitology should be taught to groups not in excess of twenty-five, in a laboratory properly fitted for presentation of the subject. It is felt that in such units the important aspects of the field can be presented in sixteen to twenty half days. In Tulane we are utilizing seventeen afternoons for each group and repeating the course six times during the year.

SCOPE OF THE MATERIAL PRESENTED

The student should first be made acquainted with the types of animal parasites infesting the human body, their size, numbers, locations in the body and their relationship to organs and tissues; whether they are free, attached to or imbedded in the tissues. He should learn about the lesions produced by these organisms, whether they are primarily mechanical or chemical in nature, and whether their greatest pathogenicity is localized at the site of the organism or generalized or referred in character. The symptomatology is next considered and the clinical significance of the infection discussed. Methods of diagnosing the infection form an intimate picture of this phase of the problem. If the student is just entering on his clinical work it is hardly desirable to give him definite prescriptions for the treatment and eradication of the parasite, but it is important to acquaint him with the more important protozoicidal and helminthicidal drugs and to demonstrate the specific action of these drugs on organisms at various sites in the body.

In order that the student may obtain an intelligent conception of the organisms, its methods of invasion of the body, whether passively through the mouth, actively by the skin route or from inoculation by a biting insect, these facts should be presented in their appropriate place. Next there should be considered its multiplication in the human body and means of leaving the body, whether in the feces, urine, sputum or by withdrawal on the part of an insect. Likewise, the fate of the organism outside the human body should be visualized. Is it resistant to unfavorable conditions as is the ascaris egg? Does it develop free-living in moist ground as the hookworm larva or does it require an intermediate host, such as the pig for pork tapeworm and the anopheline mosquito for the malaria organism? Does it multiply outside of man, as, for example, certain types of Strongyloides in the ground and the malaria plasmodium in the mosquito? What animals other than man may serve as reservoir hosts to carry on the infection and further endanger human kind?

A most important aspect of the problem is its relationship to preventive medicine. All of the diseases produced by animal parasites are preventable. Witness the reduction of hookworm disease in the South and the successful fight being waged against malaria. Unfortunately no such program has yet been undertaken against amebiasis. By the proper disposal or disinfection of human excreta, care in the preparation of food parasitologically clean, and the protection of the skin from insect bites, all animal parasites can be eventually eradicated from an area. Frequently therapeutic prophylaxis is an important adjunct in hastening the solution. Certain of these diseases are primarily those of childhood, as ascariasis and dwarf tapeworm infection; frequently they are familial or most common in institutionalized groups, as, for example, oxyuriasis. Education of children and mothers to the dangers and methods of infection require consideration under this category.

A large number of pathogenic organisms, animal parasites, bacteria, rickettsias, filterables and spirochetes, require incubation in and transmission by insects and other arthopods. Such intermediate hosts and vectors should be considered in brief, their life histories epitomized and methods of control stressed. Other insects are actual causative agents of disease, such as the sarcoptic mite and fly larvae producing myiasis. They should not be omitted from consideration.

Finally an intelligent comprehension of animal parasitology requires a presentation of the geographic distribution of the organisms involved, not only in the Southern states, but throughout the world, both in their endemic centers and in their potentially epidemic and pandemic areas.

OUTLINE OF THE COURSE IN MEDICAL PARASITOLOGY GIVEN TO JUNIOR MEDICAL STUDENTS IN TULANE MEDICAL SCHOOL

The course given to our third year medical students consists of seventeen periods of 2 hours each, although many students spend an additional half hour to one hour each period.

Twenty to twenty-five students are accommodated in each group. There is a ten minute written quiz at the beginning of each period, followed by a thirty or forty minute informal presentation of new material. This is followed by demonstrations of typical parasite groups and individual student examination of fresh and preserved material covering the subject under consideration. The schedule is as follows:

Periods I and II.—Intestinal amebae, with especial reference to the pathogen, *Endamoeba histolytica.*

Period III.—Intestinal flagellates, intestinal sporozoa and Balantidium.

Period IV.—The hemoflagellates, including the trypanosomes and Leishmanias.

Periods V and VI.—Malaria.

Period VII.—Hookworms and Strongyloides.

Period VIII.—Ascaris, Trichocephalus, Enterobius and Trichinella.

Period IX.—The filarial worms.

Period X.—Tapeworms.

Period XI.—The schistosomes or blood flukes.

Period XII.—Hermaphroditic flukes infecting man.

Period XIII. Ticks and mites in relationship to human disease.

Period XIV. Biting flies, including mosquitoes.

Period XV.—Insects other than biting diptera: filth flies, lice, fleas and bugs.

Period XVI. Review. A period in which the student may re-examine any material in which he feels deficient.

Period XVII.—Practical laboratory examination.

PRESENTATION OF MATERIAL

In presenting this material it is important to stress the human diseases of animal parasite origin in our midst. This is accomplished by especially emphasizing certain of the most important infections with the presentation of fresh material. Thus in amebiasis, in addition to demonstrating the organism from acute, chronic and carrier cases, a dog harboring the infection in the subacute or acute stage is autopsied and the types and sites of the lesions are examined by each student. In malaria fresh films are utilized in addition to representative slides of the three human plasmodia in their several stages of development. Likewise, the sexual phases in the stomachs and salivary glands of infected anopheline mosquitoes are demonstrated. In considering hookworm disease and Strongyloides not only are the respective eggs and larvae directly obtained from human cases examined, but also the stages in the soil. Dogs with hookworm and Strongyloides infections are autopsied and the student sees with his own eyes the levels infected and the lesions produced, so that he will thereafter have a visual remembrance of the gross pathology. Such demonstrations go far to make the subject a vital one for the student.

RESUME

Since 20 to 25 per cent or more of the patients seen by physicians in the South harbor animal parasites, the problem of accurate diagnosis of these parasites is a very immediate one. However, the physician should have a more fundamental conception of animal parasites in their relation to human disease. This necessitates a course in medical parasitology, which can be given most satisfactorily during the first clinical year. This course should be under the supervision of an adequately trained parasitologist. It should embrace the biology, life history, nosogeography, epidemiology, pathology, symptomatology, diagnosis, therapeusis and prophylaxis of each important animal parasite, but particularly those of clinical importance in the southern United States. Such parasites as the pathogenic ameba, the malaria plasmodia, hookworms and Strongyloides can be demonstrated by living material and the lesions which they produce can be observed by autopsy of animals experimentally infected with these organisms. The course as given to third year students in Tulane Medical School is presented. If medical parasitology is made a living subject the student will demand an opportunity to take it rather than take it only as so much required work.

DISCUSSION (*Abstract*)

Dr. W. S. Leathers, Nashville, Tenn.—Dr. Faust's outline of this subject in relation to the medical curriculum is closely in accord with what is being done in the School of Medicine of Vanderbilt University. Dr. H. E. Meleney is essentially responsible for this course and a few years ago a plan was developed for teaching medical students along this line. I am particularly interested in the close analogy between what is being done by Dr. Faust and the instruction in this subject at Vanderbilt.

There is one point which I wish to emphasize and that is that this course at Vanderbilt is referred to as a "course on parasitic diseases." The subjects are developed from the standpoint of etiology, diagnostic methods, and control measures. Some of the subjects are also considered with reference to pathology, symptomatology, and even treatment. I presume that the greatest emphasis is placed upon the diagnostic procedure. A laboratory course is given in this connection and the discussions are presented after the student has obtained some conception of the laboratory technic associated with the particular subject. However, the laboratory study may follow these discussions. I am convinced that a course of this kind is extremely important for medical students particularly in semi-tropical and tropical countries. Such instruction is also of value to men who may practice in seaport cities, because they are more likely to come in contact with tropical diseases there than in the interior points. Regardless of location, knowledge of this subject is of general value to the practitioner of medicine.

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EUGENIA B. DABNEY, M.S., Assistant Editor
C. P. LORANZ, Secretary-Manager

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EDITORIAL DEPARTMENT

N R A The Southern Medical Association, through its Secretary-Manager, signed the President's N R A code and put it in force at the earliest effective date, August 1st. The Southern Medical Journal is produced in a printing plant operating under the N R A code. We do our part.

THE RICHMOND MEETING

One cannot look over the program of the Richmond meeting without congratulating the officers of the sections and conjoint meetings, and the physicians of the Richmond Academy of Medicine, for their discriminating good work. On Tuesday, November 14, clinics will be held by Richmond physicians. On this program will be found the names of many of the Association's very distinguished members. The scientific and technical exhibits will be available for study on Tuesday, and of course throughout the meeting. Several sections have arranged special scientific exhibits. Attendants will willingly answer questions concerning the exhibits, and as much time as possible should be devoted to their study.

There will be a general clinical session on Wednesday, to address which the President, Dr. Abell, has invited specialists from different sections of the country. Several sections and groups will also convene on Wednesday, and these will be found to present much material of general interest. Thursday and Friday will be occupied with the special group meetings. The sections on pathology, neurology, public health meetings, for examples, and many other groups contain papers of interest to internal medicine, pediatrics and surgery.

Beginning on page 985, will be found the complete program. The Richmond story with many illustrations, information about hotels, etc., will be found on pages 969-981. The "After Richmond, Washington" post-meeting day information and an account of the "White House and Its Occupants" are on pages 982-984.

Much is crowded into a short four days, and it is necessary to familiarize oneself with the entire program to enjoy the meeting to the greatest advantage.

No one can afford to miss this great event of the medical year, the twenty-seventh meeting of the Southern Medical Association.

WATER IN NEPHRITIS AND AFTER OPERATIONS

The water balance of a patient is often estimated merely by comparing his fluid intake and urine volume. If the amount of urine excreted in twenty-four hours is less than the water which has been administered, the physician considers the patient to be in positive water balance and adequately hydrated. Newburgh[1] and his coworkers at the University of Michigan have shown that many paths of fluid escape other than the urine must be taken into consideration if one is to avoid a dehydration which may cause considerable damage even to normal kidneys.

In order to estimate the fluid exchange, they say, the water loss through perspiration, respiration, feces, and in the case of an operative patient, through the vomitus or through, for example, a colostomy wound, must be measured as well. Fluid loss through these channels may at times amount to much more than the urine volume. They cite the case of a patient who received an infusion in the veins of 3,000 c. c. of water in twenty-four hours, and who excreted only 700 c. c. of urine. Nevertheless the body water decreased more than a liter in the same period. The fluid intake was not adequate. In a case of opposite type, the intake was 1,200 c. c. in twenty-four hours, the output of urine was 800 c. c., yet 500 c. c. of fluid were retained.

Study of the water exchange, they say, is a considerable aid in the treatment of nephritis. The diseased kidney usually has a low concentrating power. In order to eliminate the waste

1. Newburgh, L. H.; and Lashmet, F. H.: The Importance of Dealing Quantitatively with Water in the Study of Disease. Amer. Jour. Med. Sci., 186:461, Oct., 1933.

products of metabolism, more than the normal quantity of water is therefore required by the kidneys. The body becomes dehydrated when only the usual amount is available. Far advanced nephritics require three times as much water as normal individuals to prevent retention of nitrogenous waste products. They may abstract this extra water from their bodies, with a resulting dehydration of 1,500 c. c. or more daily.

It is sometimes believed that fluids should not be pushed in edematous patients. Edema does not prevent dehydration, according to the Michigan workers, and is not a sign of inability of the kidney to excrete water. An enormous increase is observed in the volume of urine of an edematous nephritic when large quantities of water are taken; and accompanying it there may be a threefold increase in the excretion of urinary solids, and a fall in the blood nonprotein nitrogen, the indicator of retention of waste products. During a thirty-day period in which an abundance of water was supplied, an edematous patient lost about thirty pounds in weight, with at the same time a fall in the blood pressure and the nonprotein nitrogen of the blood. To maintain kidney function and to prevent accumulation of toxic material, enough water must be supplied to keep the specific gravity of the urine below the maximum concentration of which it is capable.

When the body has lost by dehydration as much as 7 per cent of its weight, say Newburgh and Lashmet, there is only a small reserve of water left. It is insufficient for excretion of the waste products even if kidney function is good. This degree of dehydration is liable in itself to produce albuminuria, casts, and red cells in the urine. Severe and prolonged dehydration of this type is often overlooked if one fails to consider the loss of water through channels other than the urine. They cite the case of a young man with intestinal obstruction and a colostomy wound, who was receiving about 3,500 c. c. of fluid daily, and in a twenty-four hour period excreted only 250 c. c. of urine. He developed symptoms of uremia, with drowsiness, blood cells, casts and albumin in the urine, and a blood nonprotein nitrogen of 57 mg. per cent. He was considered in positive water balance until the loss through drainage, vomitus, perspiration, and respiration was taken into account. Thirty-five hundred c. c. of water daily were then seen to be wholly inadequate as a vehicle to remove waste products. Eight thousand c. c. were administered in a twenty-four hour period, and subsequently 5,000 c. c. daily for two weeks. The dehydration was controlled, the urine volume increased and the blood nonprotein nitrogen returned to normal. The kidneys, however, were so damaged that some months passed before they could again excrete a concentrated urine.

The surgeon has long known that the life of the postoperative patient depends on maintenance of an adequate fluid intake. Sufficient water must be given, if not by mouth, then by other methods. The work of Newburgh and Lashmet emphasizes the necessity of fluid to prevent kidney damage, whether edema is present or not; and gives a timely warning that in estimating the requirement of the patient, the information to be obtained from measuring the urine output alone is wholly inadequate.

GLEANINGS FROM RECENT JOURNALS

Thyroidectomy for Congestive Heart Failure and Angina Pectoris.—Smith and MacKay,[1] of California, last year produced evidence that the heart weight is directly related to the metabolic rate, and also to the amount of work performed by the heart, that is, to the cardiac output. Cardiac enlargement and increased cardiac output follows thyroid administration, they say, as a simple work hypertrophy of the muscle.

It is believed that the velocity of blood flow through the lungs depends upon the metabolic demand of the body, particularly upon the metabolic rate.[2] When the metabolic rate is high, as in thyrotoxicosis, the speed of blood flow is proportionately increased. When it is depressed, as in myxedema, the blood velocity is correspondingly lowered. Patients with compensated heart disease were found to have a blood velocity within normal limits. In subjects with congestive heart failure, in spite of a normal metabolic rate, the blood velocity was considerably slowed. Blumgart, Riseman, Davis and Berlin,[2] of Boston, have experimented with the possibility of decreasing the load on the circulation in chronic heart failure by lowering the basal rate, that is, by means of total thyroidectomy. If hyperthyroidism increases the cardiac output, hypothyroidism should diminish it. The disappearance of congestive heart failure following thyroidectomy was de-

1. Smith, F. M.: and MacKay, E. M.: Relation of Heart Weight to Basal Metabolism as Varied by Thyroid Administration. Jour. Exper. Med., 55:903, 1932.

2. Blumgart, H. L.; Riseman, J. E.; Davis, D.; and Berlin, D. D.: Therapeutic Effect of Total Ablation of Normal Thyroid on Congestive Heart Failure and Angina Pectoris. III. Arch. Int. Med., 52:165, Aug., 1933.

scribed fifty years ago. They report ten patients with congestive heart failure, or angina pectoris, who had total ablation of the thyroid after other methods of treatment had failed. One patient died. During the period of postoperative observation of three to six months, the remaining patients improved. They became able to undertake from slight to considerable exertion without development of palpitation, dyspnea or signs of congestive failure. Pain was relieved and in some cases hemoptysis ceased. The lowering of the basal metabolic rate paralleled the clinical improvement. The velocity of blood flow became slower. Patients had slight dryness of the skin, increased sensitivity to cold, slower growth of hair and a slower heart rate, but usually reported that they felt mentally more alert.

The removal of an irreplaceable vital organ, of course, is to be contemplated only in desperate cases. Thyroidectomy may satisfy the craving to "do something" for a hopeless condition, and from the above report offers some hope of temporary relief.

Chemical Composition of the Human Fetus.—In order to provide a proper maternal diet in pregnancy, say Givens and Macy,[1] it is important to know how much material is laid down in the fetus at different periods of its development. They have analyzed 25 human fetuses, ranging from two to eight months in age. They have estimated calcium, magnesium and total ash, and compared these figures with other published analyses.

The length of the body was noted to increase very rapidly during the first four or five months *in utero*, after which the rate of elongation decreased. There was considerable variation in the mineral content of the bodies. The total ash varied from 4 to 21 per cent of the dry body weight, that is, from 54 to 112 grams. From 6 to 30 per cent of the total mineral of the mature fetus, or 13 to 33 grams, of calcium were found. Up to the fourth month, the mineral requirement of the fetus was comparatively slight. It approximated only 0.55 gram of ash and 0.1 gram of calcium. The fetal demand for minerals, particularly calcium, increased progressively and at approximately the same rate with age. The greatest demand for minerals came during the last months of gestation. Givens and Macy say, therefore, that it is important during the last months of pregnancy that the mother demand the best available medical supervision and follow sound nutritional principles.

Obviously, earlier observation of the same rules is as important, to prepare the mother for the drain of the last three months. It is probably difficult to provide all the necessary material from day to day. An abundant reserve should be laid down in advance for the period of greatest strain.

Goiter in Japan.—In a study of goiter around the world, says McClendon,[1] Japan was the only non-goitrous country found, there being about one goiter per million Japanese. The iodine intake of the Japanese is very high, more than double that of any other peoples, since seaweed is a constant constituent of their diet. McClendon has analyzed a large variety of seaweeds found along the Japanese coast. They were found to vary in their percentage of iodine; species differences were so constant as to be of aid in the identification of the various types of vegetation. Seaweed characteristically contained a thousand times as much iodine as any other food.

1. Givens, M. H.: and Macy, I. G.: The Chemical Composition of the Human Fetus. Jour. Biol. Chem., 102:7, Sept., 1933.

TWENTY-FIVE YEARS AGO

FROM JOURNALS OF 1908

Pituitary Tumor and Acromegaly.—"Harbitz[2] has reported 6 cases of tumor in the hypophysis . . . . accompanied by acromegaly in only one case. . . . . Josefson . . . has reported 4 cases of hypophysis tumor, none accompanied by acromegaly . . . . and about 40 or 50 cases of hypophysis tumor without acromegaly are on record. . . . . Acromegaly should not be regarded as a direct consequence of a tumor in the hypophysis. Its real cause should be sought deeper than this, probably in some constitutional weakness, with abnormal conditions in a whole series of organs with an internal secretion which may manifest itself in some individuals in a pathologic outgrowth."

Diagnosis of Degree of Malignancy of a Tumor.—"There appears to be a widespread opinion that the progress of a given case of malignant disease can be foretold by means of a microscopic examination of a portion of the tumor.[3] In other words, it is believed that the number

1. McClendon, J. F.: Iodine and Goiter with Especial Reference to the Far East. Jour. Biol. Chem., 102:91, Sept., 1933.

2. Harbitz: Norsk Magazin for Laegevidenskaben, Christiana. Ab. J.A.M.A., 51:878, 1908.

3. McConnell, Guthrie: The Non-relationship of Active Cellular Division to the Prognosis in Malignant Disease. J.A.M.A., 51:910, 1908.

of actively dividing cells found in the tissue bears a definite relation to the rapidity of the growth of the neoplasm. The greater the number of actively dividing cells, according to this opinion, the more rapid the formation of new tissue and consequently the graver prognosis. . . .

"It is not wise for the pathologist to attempt to make any prognosis concerning the duration of the life of the patient by drawing conclusions from his microscopic examination."

Wassermann Test.—"The serum reaction for syphilis is . . . . positive in from 90 to 95 per cent of all cases with syphilitic manifestations.[1]

"It is found positive in 50 to 60 per cent of latent cases.

"It is found positive in from 70 to 80 per cent of parasyphilitic diseases. . . . .

"The reaction will be found of enormous advantage in differential diagnosis in every department of medicine."

Pellagra.—According to an editorial[2] in the *Journal of the American Medical Association,* the appearance of pellagra in epidemic form "indicates that some marked change must have occurred in a part of the maize crop, for such epidemics have not been noticed in former years. . . . . Careful inspection of maize intended for human food would appear to be a proper prophylactic measure."

Dr. Moore,[3] of Augusta, Georgia, however, said: "It is by no means proved that damaged maize alone is capable of producing this disease, although this is the theory held by many authorities, especially the Italian investigators."

Correspondence

MEDULLOBLASTOMA OF THE KIDNEY: A CORRECTION

Editor, SOUTHERN MEDICAL JOURNAL:

It has been brought to my attention by Dr. Edwin P. Lehman that several quotations from his paper on "Neuroblastoma" in the *Journal of Medical Research,* referred to in my paper on "Medulloblastoma of the Kidney" in the September number of the SOUTHERN MEDICAL JOURNAL, were used without giving him credit for them. As I stated at the Birmingham meeting, the material for this article was obtained for the most part from the literature and it is my most earnest desire to give him, as well as all the other authors from whose articles I gathered the material, all credit due them. I would like very much to bring to the attention of your readers, therefore, the following quotations from Dr. Lehman's article which were included in my paper. The discussion of the history of the tumor on page 753, lines 6 to 40, of the first paragraph, and again the fourth paragraph on this page are quotations from his article. As I said in my paper, I thought Dr. Lehman's microscopic picture was the best I had found in the literature and his description is included in the first paragraph on page 756, column 2, and the second paragraph on page 757. In order that there may be no possible confusion in the minds of your readers and that no slight or grounds for misunderstanding may exist as to the originality of these lines in my paper, I shall appreciate it if you will publish this letter.

E. P. ALYEA, M.D.

Durham, North Carolina,
October 9, 1933.

1. Butler, W. J.: Serum Diagnosis of Syphilis. J.A.M.A., 51: 824, 1908.
2. Editorial, J.A.M.A., 51:1076, 1908.
3. Moore, N. M.: Pellagra. J.A.M.A., 51:1076, 1908.

Book Reviews

Materia Medica, Pharmacology and Therapeutics. By Walter A. Bastedo, Ph.G., M.D., Sc.D., F.A.C.P., Assistant Clinical Professor of Medicine, Columbia University. Third Edition, reset. 739 pages with illustrations. Philadelphia and London: W. B. Saunders Company, 1932. Cloth, $6.50.

Part one, consisting of general information, is unchanged except to clarify the meaning. In the second part extensive changes have necessitated not only a complete rewriting, but also rearrangement. Among the new subjects are: the suprarenal cortex, ephedrine, quinidine, plasmochin, yatren, ethylene, the barbiturates, pre-anesthetic narcotics, carbon dioxide, carbon tetrachloride, the antiseptic dyes, mercurochrome, metaphen, mercury diuretics, phenylhydrazine, insulin, ovarian preparations and colloidal lead in cancer. The third part, concerned with prescription writing, is unchanged.

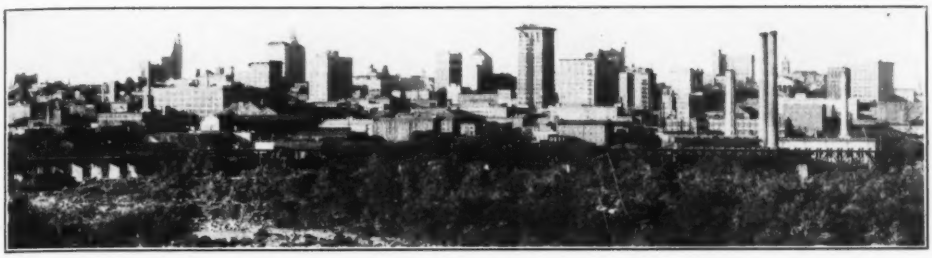
This book has been a standard text for the past twenty years. It is conservative, up to date, and well written.

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1932. 104 pages. Chicago: American Medical Association. Cloth, $1.00.

This brochure contains reprints of the reports on products that have been rejected by the Council during the past year. In describing each product the reasons for the decree of the Council are given. Among the products that are included in this book are amertan, antiopin, eubetin, ferro-copral, hepatex, can-aiden, tonikum-Roche, bi-so-dol, and many others.

Several preliminary reports are of special interest. One concerns the use of thorotrast in retrograde pyelography and roentgen visualization of the liver and spleen. Special reports on sulpharsphenamine and mercurochrome give definite valuation of the efficacy and present status of these two chemicals.

BOOK REVIEWS continued on page immediately following Program.



Down Town Richmond.

RICHMOND—WHERE WE MEET

RICHMOND—THE HOST CITY*

The Southern Medical Association will find an appreciative and congenial scientific background in a community containing a great medical school, numerous hospitals, and hundreds of active practitioners. The physicians composing the Association, however, are not only serious minded men and women, concerned with the attentive regard of erudite essays and exhibits; they are likely to have, also, certainly in the average instance, a decided interest in the creature comforts that the excellent Richmond hotel system will have ready for them; in the outdoor attractions provided by wide avenues, beautiful parks, and inviting golf courses; in the impressive evidences of commercial and industrial activity typical of the new South; especially perhaps in the dozens of intimate memorials of a past, glamorous, often troubled, sometimes tempestuous, linked with names and happenings that will stir the imagination, if not the heart. A glimpse into these by-ways would, therefore, seem appropriate in connection with the more professional details elaborated elsewhere in this issue.

*Written for the SOUTHERN MEDICAL JOURNAL and the Bulletin of the Richmond Academy of Medicine by Dr. Joseph F. Geisinger, Chairman of Sub-Committee on Publicity, General Committee on Arrangements, from the Richmond Academy.

RICHMOND TODAY

Between the tragic era of the capture and burning of Richmond just before Lee's surrender at Appomattox and the present time, the village of Byrd has undergone many transformations. Ashes and woe failed to crush the spirit of men and women in whose veins flowed the blood of many of the greatest of the early pioneers. Reconstruction began at once. It was at first a slow and painful process, but gradually out of the desolation and bitterness that followed the War, prosperity and quietude began to appear again. Memory of the past was never dimmed, but the tasks of the present and the promises of the future soon assumed a commanding position in the perspective. The hand that had wielded a sabre or aimed the deadly course of a missile now turned peacefully, but with determination, to the plowshare, the loom, or the throttle. Generals became college professors or business executives. Fields once frowning with cannon and trenches became covered again with grain, tobacco, cotton. Warehouses relapsed from hospitals to their intended estate and filled with rich stores. Schools reopened. The arts began to revive. Most important of all, confidence was restored and hope lifted her head high once more. Richmond and the South were on the march again—this time to victory.

Home of the Richmond Academy of Medicine (front) and Library of the Medical College of Virginia (rear).

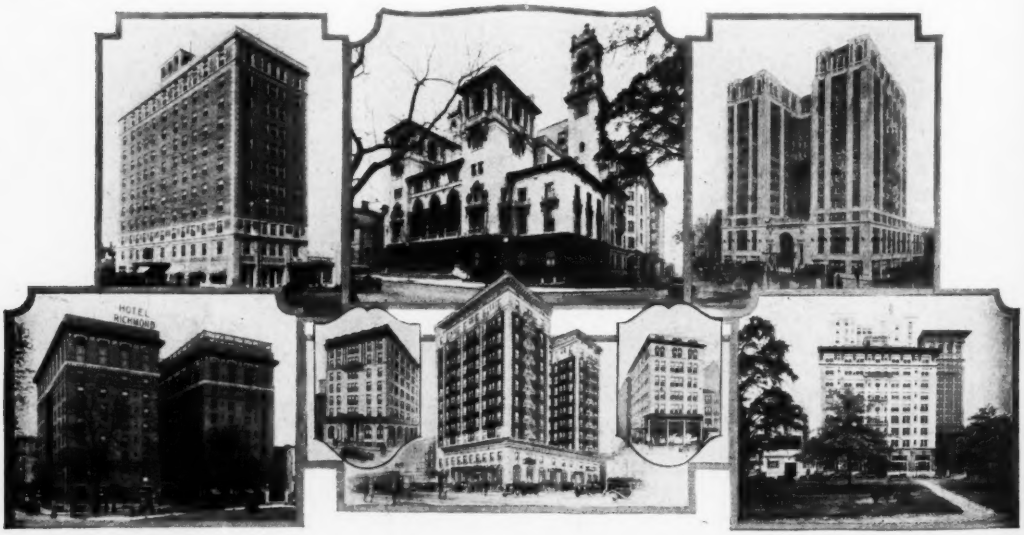
McGuire Hall. Administration and Laboratory Building, Medical College of Virginia.

McGuire Monument in the Capitol Grounds.

Inscription on monument: "To Hunter Holmes McGuire, M.D., LL.D., President of the American Medical and of the American Surgical Associations; Founder of the University College of Medicine; Medical Director, Jackson's Corps, Army of Northern Virginia; An eminent civil and military surgeon, and beloved physician; An able teacher and vigorous writer; A useful citizen and broad humanitarian; Gifted in mind and generous in heart. This monument is erected by his many friends."

Today the city which awaits the coming of the Southern Medical Association is of metropolitan dimensions with a corporate population of about 200,000 and a half million people within a fifty-mile radius. It is one of the wealthiest cities per capita in the United States. It has become the financial and industrial capital of an entire section. It is the seat of the Fifth Federal Reserve Bank. Its exports go to every part of the globe. It is crowded with industries. It is an educational center of importance, containing a large university and numerous public and private institutions of lesser grade; a medical center, with a college that enjoys the distinction of being the only school of its sort in the South that was not closed during the War Between the States, and a great theological seminary. It is dotted with beautiful parks and imposing public buildings and monuments; and intersected by many wide avenues leading into residential areas of great charm. Here the first coal was mined in the United States; the first American iron and brick were made; the great tobacco industry had its beginning. There are 15 hospitals in the city; 216 churches; 10 golf courses; 26 parks; 15 playgrounds; 3 radio broadcasting stations; 47 public school buildings; 30 private and parochial schools; 6 business colleges; 2 universities for colored students; 40,000 private homes; 250 apartment houses; 15 hotels; 2 daily newspapers; a municipal library of 65,000 volumes; a State library of 200,000 volumes and 1,500,000 pieces of manuscript; one of the most noted medical libraries in the world; an auditorium seating 5,000 people; a large athletic stadium.

The Clay Street electric line in Richmond is the oldest in the world. The largest cigar factory in the



Some Richmond Hotels.—Top left, William Byrd; top center, Jefferson; top right, John Marshall (General Headquarters); bottom left, Richmond; bottom center, Murphy's and Annexes; bottom right, Ruegers.

world, making 500,000,000 cigars annually, is located here; also the largest cigarette factory, with an annual output of 40,000,000,000 cigarettes. The largest baking powder factory in the world, the largest blotting paper factory, the largest bottled flavoring extract factory, the largest factory for the reproduction of antique furniture, and the largest wood works—all these belong to Richmond, along with the largest mail order house in the South and one of the largest locomotive plants in existence. The city has an estimated wealth of $600,000,000. It contains 416 wholesale and jobbing firms, 2,570 retail stores, and 617 industrial organizations.

Enveloping these evidences of material development and steady advancement is an atmosphere that places the city among the distinctive communities of the United States. The engaging combination of past and present is of unfailing interest and pleasure to the visitor. It has been noted that certain American authors make annual pilgrimages to Richmond for the inspiration they find there, to say nothing of the kindred personalities with whom they will come in contact, including James Branch Cabell, Ellen Glasgow, and Mary Johnston, who have their homes in Richmond. The peculiar charm of old Franklin Street before it becomes the

Broad Street, a typical street scene.

The State Capitol. To the right rear is seen the City Hall.

University of Richmond (airplane view), a Baptist institution of higher learning.

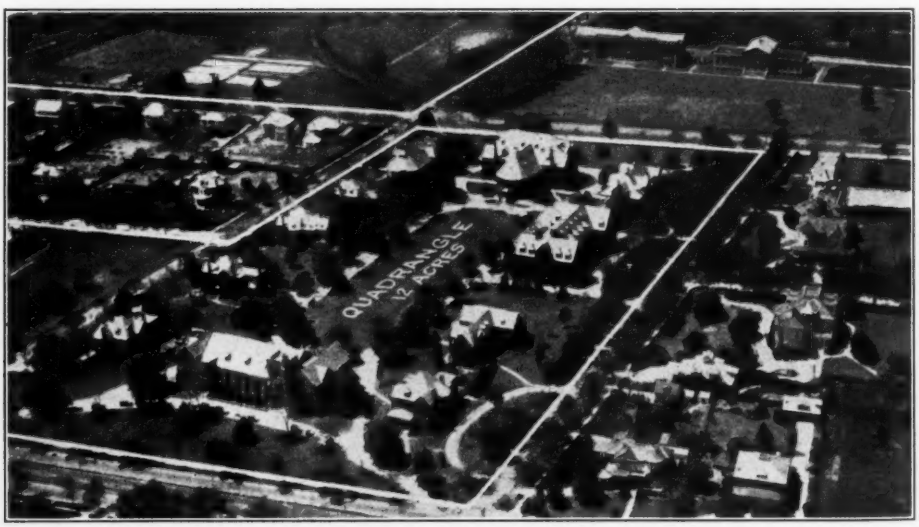
famed Monument Avenue has aroused a feeling comment from Mencken. Of Richmond in general, Frances Parkinson Keys, writing in *Good Housekeeping*, had this to say as expressive of the sentiment stirred by the city in an observant and appreciative visitor:

"A brave, smiling city like Paris, a charming city like Washington, a city rising, like Rome, on seven hills—that's Richmond. Wide, smooth thoroughfares, modern as a mid-western Main Street—that's Richmond. Fluted white pillars, dappled with wisteria, shaded paneled doors and polished knockers—that's Richmond. Wide shaved lawns, dotted with tea tables, around an ultra-modern, ultra smart country club—that's Richmond. Drooping branches shadowing the tombs of two United States presidents in old Hollywood Cemetery—that's Richmond. Progress and prosperity, tradition and triumph, culture and courtesy, learning and leisure and loving kindness—that's Richmond."

MEDICAL RICHMOND

The visiting physician will, of course, find his most enduring interest in Richmond's activities, past and present, in the field of medicine.

The Medical College of Virginia, with an enrollment of nearly 800 in the coordinate schools of medicine, dentistry, pharmacy and nursing, is situated here, occupying nine major buildings—the Memorial, Dooley, St. Philip's and Crippled Children's Hospitals, the Outpatient Department in the old Virginia Hospital, McGuire Hall, which was formerly the University College of Medicine, the Egyptian Building, the Library, Cabaniss Hall for white nurses and St. Philip's dormitory for colored

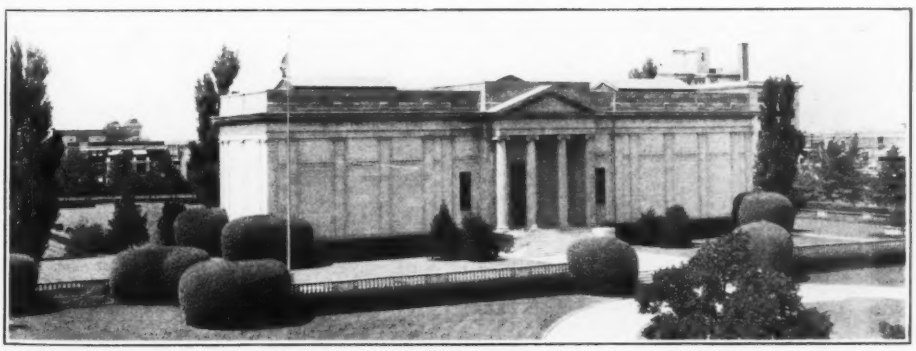


Union Theological Seminary, Southern Presbyterian Church (airplane view), in the beautiful Ginter Park section. The two buildings at the top right hand corner are the Southern Presbyterian General Assembly's Training School for Lay Workers.

Monument Avenue. The first monument is J. E. B. (Jeb) Stuart, the second is Robert E. Lee. Monument Avenue is one of the most beautiful residential streets in America.

nurses. The present eminent position of the college as a clinical and teaching unit is founded upon a solid groundwork of achievement extending through nearly a century of time. It was originally started in 1838 as the medical department of Hampden-Sidney College. Its early days were marked by all the effort and uncertainty of those times. In 1845 it moved into a new home, which is still standing—the so-called Egyptian Building, generally recognized to be the finest example of Egyptian architecture in this country. This ancient structure remains one of the points of great interest in Richmond and to the profession it is further emphasized by the thought that in former years many noted men sat here as students or teachers. Among the latter were Brown-Sequard, the French savant; Charles Bell Gibson, who introduced anesthesia into Virginia; and Jeffries Wyman, who later became Hervey Professor of Anatomy at Harvard University. From time to time the college has faced many difficulties, but has always overcome them and pushed steadily onward. It is the only institution of its sort in the South which did not close during the War Between the States. Its influence upon medical trends in this section has been enormous. Today the school stands in the front rank, with elaborate clinical facilities, with full-time professors in many of its chairs and with the cordial support of the local profession, most of whom are its graduates, and many of whom have occupied, or still occupy, positions in its faculty.

As a hospital center, Richmond acquired during the War Between the States a prominence it has never lost. More sick and wounded were congregated here in 1861-1865 than at any other point in the South. About twenty-five military hospitals were in continuous operation, and one of these, Chimborazo, was the largest hospital in the world up to that time, a distinction it is said to have held until the opening of the Walter Reed in Washington. The names of James B. McCaw, John S. D. Cullen, Hunter McGuire, and Samuel P. Moore, surgeon general of the Confederate Army, are a few of those conspicuously identified with this martial period of Richmond's medical history. One of the hospitals was



Confederate Memorial Institute (Battle Abbey)

A memorial to the soldiers of the South who served the Confederate cause during the War Between the States. This building houses the largest collection of Confederate portraiture in existence and is known for the famous Hotlbauer murals depicting four seasons of the Confederacy.

Jefferson Davis Memorial on Monument Avenue.

under the direction of Captain Sallie Tompkins, the only woman who held a commission in the Confederate military service. Today there are in Richmond 15 hospitals, with a bed capacity of 1,196 for charity patients and 480 for private patients. In addition to the college hospitals already mentioned, there are several charitable institutions, including the City Home, the Sheltering Arms, the Home for Incurables, Lee Camp Soldiers' Home Hospital, Pine-Camp Hospital, and the Retreat for the Sick. The last named institution also has facilities for private patients. The exclusively private institutions are: St. Luke's Hospital, Stuart Circle Hospital, Johnston-Willis Hospital, St. Elizabeth's Hospital, Grace Hospital, Westbrook Sanatorium and Tucker Sanatorium, all of which are owned and controlled by the physicians constituting their staffs.

The host of the Southern Medical Association will be the Richmond Academy of Medicine, which has had a long and honorable record in fostering and developing medical practice and research in this city. Through its scientific sessions and its lively interest in general medical problems of whatever sort, the Academy has been a very influential factor in local professional affairs. Its roster contains the names of the large majority of the 350 active practitioners in Richmond. More recently the Academy has become established in a new home, erected by subscription among its membership and recognized to be one of the most commodious, convenient, and admirably equipped buildings of its sort in the country. Several of the sectional meetings will be held there. The headquarters of the Medical Society of Virginia are situated in this building and also the editorial offices of the well-known *Virginia Medical Monthly*, which represents the present day expression of Richmond and Virginia's rather notable contribution to medical journalism during the past half century. More particularly, however, the Academy home will exhibit to members of the Association the world-famous Miller medical library, which has recently come into its possession, with its priceless collection of rare books, silhouettes, portraits, letters and curios.

Finally, the visiting physician will see in Richmond public testimonials to the prominence of a number of members of the profession. Within the hallowed Capitol Square is a monument to the memory of Hunter McGuire, father of a former President of the Association. Before the White House of the Confederacy became the residence of Jefferson Davis, it was owned and occupied by a Richmond doctor. Two city streets —Foushee and Adams—were named after physicians who became mayors of the city. This position has been held also by two other physicians, one of whom, J. Fulmer Bright, is in office at the present time.

NEIGHBORING SHRINES

Richmond is the hub of a network of newly and admirably constructed highways which make automobile transit rapid, safe, and very diverting through stretches of beautiful scenery. In addition, there are six railroads, two steamship lines, and three interurban electric lines; also a municipal airport, which is the central operating base of the New York-Atlanta air mail route. More than 100 passenger trains arrive and depart in Richmond daily; also 38 passenger busses entering over 16 motor lines. Air transport service, operating from the Byrd field, is becoming more and more popular.

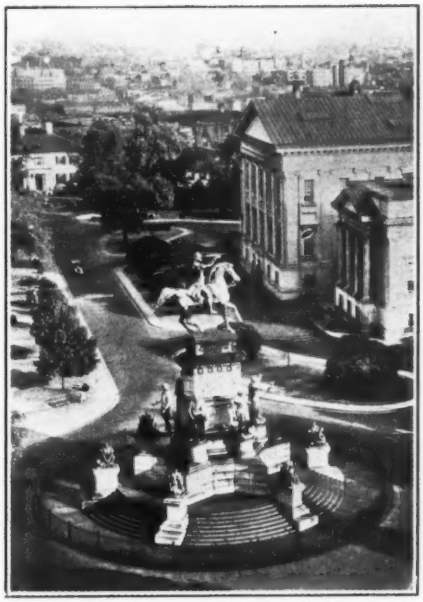
Through these various traffic lanes about 500,000 visitors pass through Richmond annually. Coming primarily in answer to the city's own appeal to tourists, this great throng finds in the capital also a convenient headquarters for trips to other points of great historic interest. The national capital is but 110 miles away, over a wide highway, which is the main Eastern link between the North and the South. In this direction, before reaching Washington, one comes to Arlington, the national cemetery, and to Mount Vernon, the home of George Washington. Within a two hours' drive to

Stonewall Jackson on Monument Avenue.

the east of Richmond is Williamsburg, the colonial capital, now being restored by John D. Rockefeller, Jr. A short distance beyond lies Jamestown Island, site of the first permanent English sett'ement in America; and in another direction, Yorktown, where the surrender of Cornwallis brought the Revolutionary War to a close. Many original memorials of the men and events of those momentous early days remain to cast a spell over the visitor to these shrines. In this same tour may be conveniently included a glimpse of many of the finest old homes in America, the colonial estates of the Cavaliers who came over from England to settle in Virginia. Another hour or so on the road brings one to Chesapeake Bay and the ocean, to old Fortress Monroe, to Langley Field, to the great ship-building yards of Newport News, and to Virginia Beach, where the finest surf bathing on the coast is found.

Monticello, home of Thomas Jefferson, can be reached in a three hour ride to Charlottesville, seat of the great University of Virginia, founded by Jefferson and today one of the high-ranking centers of learning in the United States. The famed Blue Ridge mountains surround the University. Crossing this ridge from Charlottesville, the tourist comes to the Valley of Virginia, with its scenic caverns, its stirring memories of "Stonewall" Jackson, its approach to the Natural Bridge and the Virginia Military Institute, the West Point of the South. Near by is also Shenandoah National Park, selected by the Government because of its wonderful scenic beauty, recently visited and highly commended by President Roosevelt.

Another three hour trip out of Richmond takes one across the new Rappahannock River bridge into the counties of the Northern Neck, the birthplace of more great Americans than can be boasted by any other section of the country. Here is "Wakefield," where Washington was born; seven miles away is "Stratford Hall," birthplace of Richard Henry Lee, "Light Horse" Harry Lee, and Robert E. Lee. Three miles from "Wakefield" is the old house where President James Monroe first saw the light of day; and twenty miles away James Madison, fourth president of the United States, was born, in King George County. "Mount Airy," "Sabine Hall," "Epping Forest," birthplace of the mother of Washington, and many other old homes may be visited on this trip, which may also include historic Fredericksburg, and near by, the scene of "Stonewall" Jackson's mortal injury.

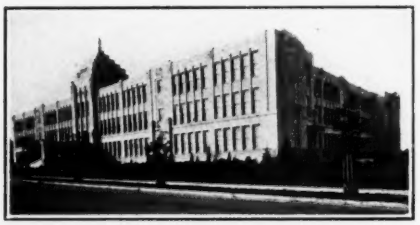


The Equestrian Statue of Washington, surrounded by famous Virginians. To the right, rear view of State Capitol and to the left, the Governor's Mansion.

Matthew Fontaine Maury.
Pathfinder of the Seas, on Monument Avenue.

Scattered along all these routes are battlefields and sites of important events, now all appropriately marked and described by highway memorial tablets. The once-bloody fields immediately adjacent to Richmond, where some of the most dogged fighting of the War occurred under some of the greatest generals of both sides, have recently been grouped into a "Battlefield Park." A very short drive out of the city leads to the scene of these historic campaigns and brings one to Cold Harbor, to Malvern Hill, to Seven Pines, to Gaines Mill, to Fort Harrison, and to White Oak Swamp—names that sweep the Southerner's memory back to days filled with all the hope and anxiety, heroism and horror of the tide of war surging and ebbing at the doors of the capital of the Confederacy.

Public Library.



Thomas Jefferson High School.

The Mosque, Acca Temple Shrine.

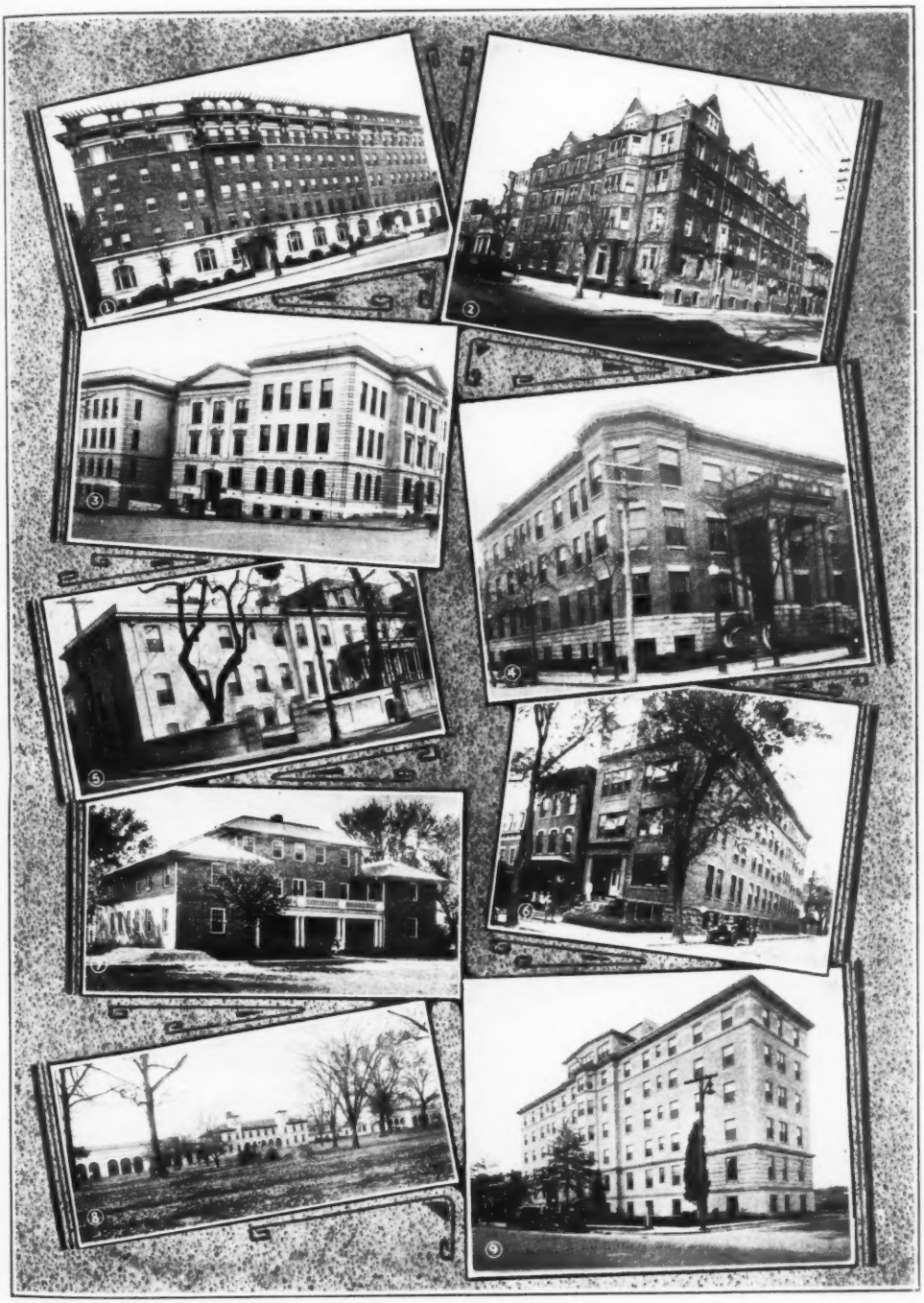
POINTS OF INTEREST IN CITY

Many of the points of greatest interest within the city itself have been mentioned or intimated previously in this JOURNAL, especially St. John's Church, where Patrick Henry hurled his challenge; the house in which the great Chief Justice Marshall had his residence, the White House of the Confederacy, the Virginia State Capitol, designed by Jefferson, Monumental Church, commemorating the tragedy of 1811; the old Egyptian medical building; and beautiful Hollywood Cemetery, the burial place of Presidents Monroe and Tyler, of Jefferson Davis, of numerous Virginia governors; of Fitzhugh Lee, "Jeb" Stuart, and Commodore Maury.

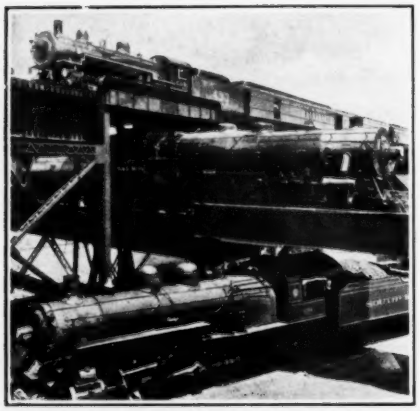
These, however, are but a few of the sights that make Richmond a city of singular attractiveness. There are many beautiful parks, chief among which is Capitol Square, consisting of twelve acres in the heart of the business district and containing the Capitol Building, the Governor's Mansion, the State Library Building, the State Office Building; the old Bell Tower; Crawford's great equestrian statue of Washington, and a number of statues of other famous Virginians. Within a few steps of this Square stands the City Hall, and a short distance away is the Valentine Museum, a handsome old residence built in 1812, housing now a notable collection of paintings, prints, statuary and pottery, but more especially the original cast of the recumbent statue of Lee, by Edward V. Valentine. Around the corner, near Twelfth and Marshall Streets and close to the old Medical College, is the site of the first academy founded in America, known as the "American Academy of Sciences and Fine Arts," established in 1786 by a French officer, the Chevalier Quesnay de Beaurepaire.

In the West End, Monument Avenue is justly famed for its beauty and for the series of noble memorials which give the avenue its name. Here are imposing monuments to Robert E. Lee, to "Stonewall" Jackson, to J. E. B. Stuart, to Jefferson Davis, and to Matthew Fontaine Maury. On the Boulevard, a short distance off this avenue, is the classic sandstone Battle Abbey, or Confederate Memorial Institute, containing the superb Hoffbauer murals of Confederate history, the John Barton Payne collection of paintings, including "The

Country Club of Virginia, where the golf tournament will be held.

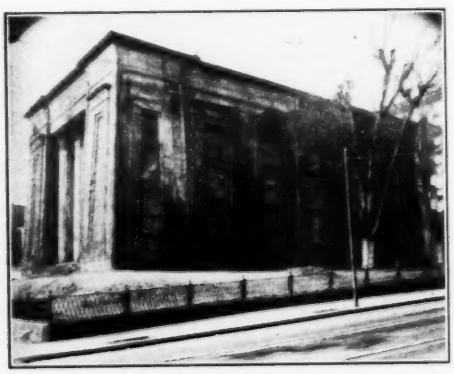


(1) Stuart Circle Hospital (private); (2) St. Luke's Hospital (private); (3) Memorial Hospital (public); (4) Grace Hospital (private); (5) Tucker Sanatorium (private); (6) St. Elizabeth's Hospital (private); (7) Administration Building, Westbrook Sanatorium (private); (8) Crippled Children's Hospital (public); (9) Johnston-Willis Hospital (private).



Triple crossing—one of the few spots in the world where three trunk lines cross. Top, Chesapeake and Ohio; center, Seaboard Air Line; bottom, Southern.

Richmond-Randolph Lodge, No. 19, A. F. & A. M., the oldest Masonic Hall in the United States.



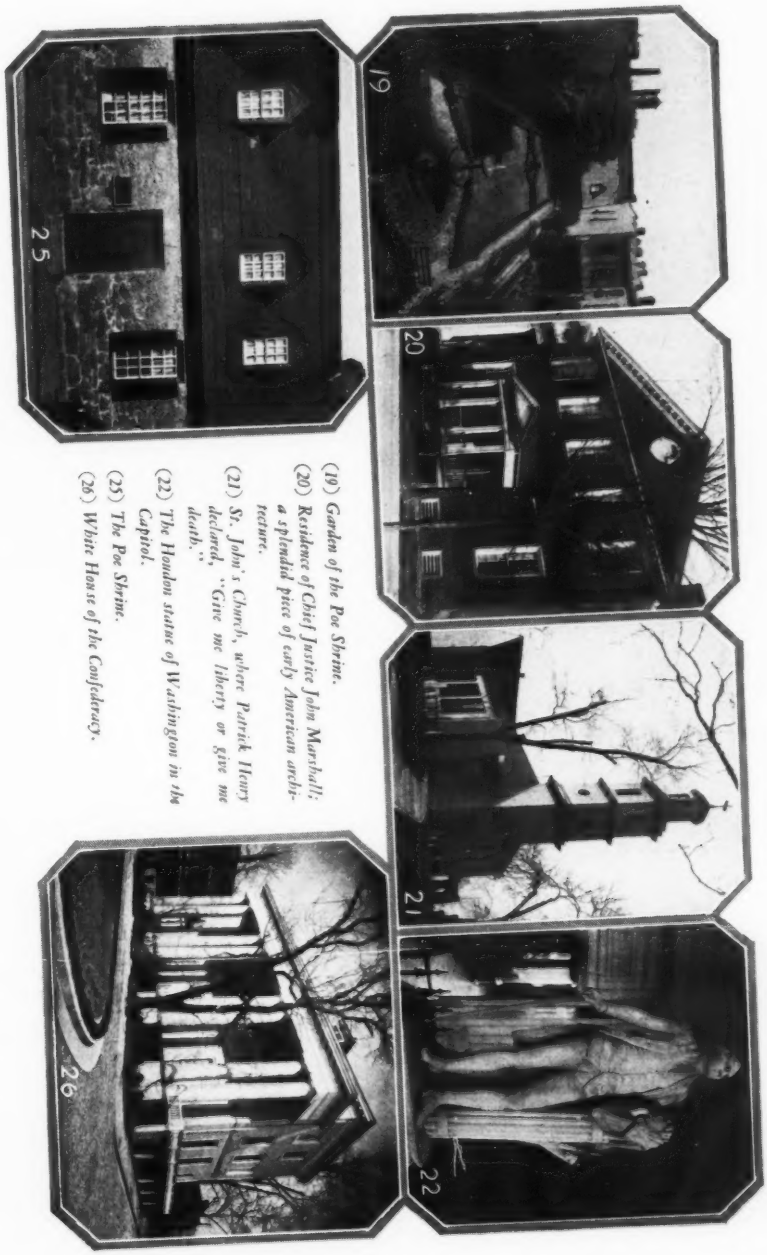
The Egyptian Building of the Medical College of Virginia.

Adoration of the Shepherds," by Murillo, and the most complete and valuable assembly of Confederate portraiture in existence. Adjoining the Battle Abbey is the Confederate Soldiers' Home and a magnificent new home for Confederate women which has just been erected.

Richmond is a city of churches and many beautiful houses of worship will be seen here. Perhaps the most striking of these is the imposing Cathedral of the Sacred Heart, the gift of Thomas Fortune Ryan to the Catholic diocese. St. John's and Monumental have previously been mentioned. Historic old St. Paul's, the modern and elaborate First Baptist, the impressive Beth Ababah Temple, will all attract especial notice. The First African Baptist Church, housing a large colored congregation, is of unusual interest. It was built in 1780 and rebuilt in 1870. The notable Virginia Convention of 1829-1830 was held here; also the meeting in 1865 after the failure of the Peace Conference at Fortress Monroe.

The hotels of Richmond will be found thoroughly modern, with an efficient service, which will be prepared to meet all the requirements of the Southern Medical Association. Chief among the hotels of the city are the John Marshall, to be used as convention headquarters; the Jefferson, noted for its beauty and for its important statue of Thomas Jefferson; Murphy's, the Hotel Richmond, the Hotel William Byrd, and Rueger's Hotel. Among the clubs of the city of special distinction are the Westmoreland, the Commonwealth, the Woman's Club, and the Country Club of Virginia, with its beautiful scenic setting and its alluring golf courses. The Country Club lies in the center of the Westhampton settlement containing many of the most palatial residences in Richmond and also the beautiful grounds and buildings of the University of Richmond. Along the main approach to Westhampton one passes Windsor Farms, a new and very charming residential development, noted particularly as containing Virginia House and Agecroft Manor, both of which were brought from their ancient sites in England and rebuilt here.

Members of the Association who are also Masons will be interested in the building which has been owned and occupied since 1787 by Richmond-Randolph Lodge No. 19. This is the oldest Masonic hall in the United States, the corner-stone having been laid in 1785 by James Mercer, Grand Master, assisted by Edmund Randolph, then Governor of Virginia. In 1824 a reception was given in this hall to General Lafayette, himself a notable figure in Masonry. His signature can be seen on the register and also that of his son, George Washington Lafayette. Chief Justice Marshall was master of Richmond Lodge and a trustee of the hall. He was a Grand Master of Virginia and presided once at the Grand Lodge, which met for years here. During the War of 1812 the hall was used as a military hospital. A session of Masons was held in this building just after the evacuation of Richmond in 1865 and sixty-two Federal soldiers attended. One forgot his sword—and it is still there.



(19) *Garden of the Poe Shrine.*

(20) *Residence of Chief Justice John Marshall; a splendid piece of early American architecture.*

(21) *St. John's Church, where Patrick Henry declared, "Give me liberty or give me death."*

(22) *The Houdon statue of Washington in the Capitol.*

(25) *The Poe Shrine.*

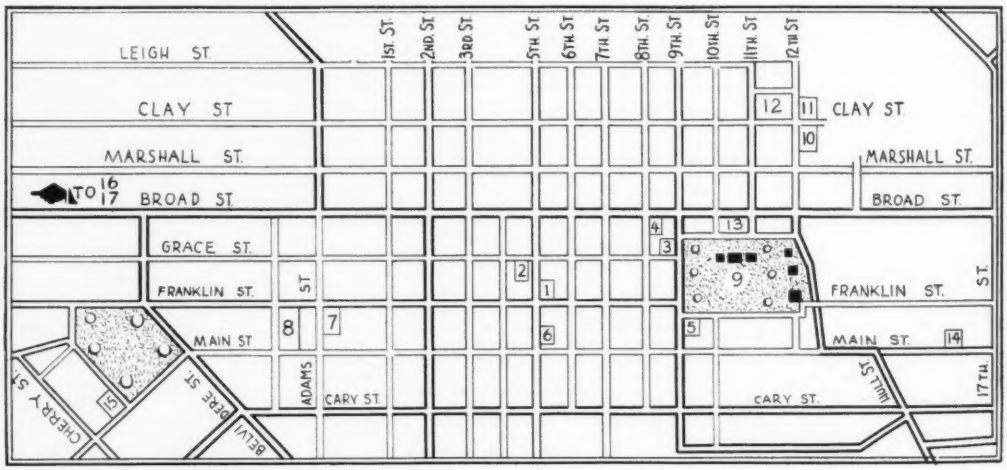
(26) *White House of the Confederacy.*

Old St. Paul's Episcopal Church. Jefferson Davis was here when news came of the surrender.

Virginia House, Windsor Farms.

WELCOME

Such, in brief, is Richmond of today as far as hurriedly sketched glimpses can picture it. The intangible thing that is the spirit of the capital of the Old Dominion cannot be approached with words—but is vastly more important than the material expressions of the city's prosperity and growth. It is something that is filled with warm friendliness and hospitality, of which the membership of the Southern Medical Association, their families, and friends will be speedily conscious when they assemble here in November in annual convention.



STREET MAP OF RICHMOND SHOWING MEETING PLACES

1. HOTEL JOHN MARSHALL. General Headquarters—Registration; Exhibits; General Sessions; Section on Surgery; Section on Obstetrics; Section on Pathology; Section on Neurology and Psychiatry; Section on Radiology; Section on Dermatology and Syphilology; Section on Medical Education; Allergy Clinic and Round Table; Southern Section, Society for Experimental Biology and Medicine.
2. CENTENARY METHODIST CHURCH. Section on Medicine; Section on Pediatrics.
3. HOTEL RICHMOND. Section on Urology.
4. Murphy's Hotel.
5. Rueger Hotel.
6. SECOND PRESBYTERIAN CHURCH. Section on Gastroenterology; Section on Bone and Joint Surgery; Section on Railway Surgery.
7. SECOND BAPTIST CHURCH. Section on Public Health; National Malaria Committee; Southern Branch, American Public Health Association.
8. JEFFERSON HOTEL. American Society of Tropical Medicine; Woman's Auxiliary.
9. State Capitol and Capitol Grounds.
10. White House of the Confederacy, a Confederate Museum.
11. RICHMOND ACADEMY OF MEDICINE. Section on Ophthalmology and Otolaryngology.
12. Medical College of Virginia.
13. City Hall.
14. Main Street Railroad Station.
15. THE MOSQUE. General Public Session and President's Reception and Dance (Wednesday evening).
16. William Byrd Hotel.
17. Broad Street Railroad Station.

OFFICERS, RICHMOND ACADEMY OF MEDICINE

President, Dr. Carrington Williams.

First Vice-President, Dr. Turner S. Shelton.

Second Vice-President, Dr. J. Powell Williams.

Secretary-Treasurer—Dr. Thomas D. Jones.

Chairman of Program Committee, Dr. Karl S. Blackwell.

Chairman Board of Trustees, Dr. Wyndham B. Blanton.

Chairman Board of Censors, Dr. Joseph F. Geisinger.

CHAIRMEN OF COMMITTEES ON ARRANGEMENTS FOR THE RICHMOND ACADEMY OF MEDICINE

General Chairman, Dr. Fred M. Hodges.

Honorary Vice-General Chairmen, Dr. Stuart McGuire, Dr. J. Shelton Horsley, and Dr. James K. Hall.

Finance, Dr. W. H. Higgins.

Entertainment, Dr. Beverley R. Tucker.

Program or Clinics, Dr. I. A. Bigger.

Meeting Places, Dr. R. Finley Gayle, Jr.

Hotels, Dr. J. Powell Williams.

Publicity, Dr. Joseph F. Geisinger.

Scientific Exhibits, Dr. W. Ambrose McGee.

Technical Exhibits, Dr. J. B. Dalton.

Alumni Reunions and Fraternity Luncheons, Dr. H. H. Ware, Jr.

Membership, Dr. C. M. Caravati.

Information, Dr. J. S. Horsley, Jr.

Transportation, Dr. Arthur S. Brinkley.

Signs and Badges, Dr. Garland Harwood.

Lanterns, Dr. J. L. Tabb.

Golf, Dr. Paul W. Howle.

Trap Shooting, Dr. W. B. Porter.

Women Physicians, Dr. Pauline Williams.

Ladies' Entertainment, Mrs. Stuart McGuire, Chairman; Mrs. J. B. Dalton, Vice-Chairman.

RICHMOND HOTELS

Richmond has good hotels, and those who plan to attend the meeting can be assured of comfortable hotel accommodations. If one writes to the hotel of his choice and does not hear within a reasonable time, or if any hotel has reservations beyond its capacity, the local Hotel Committee, of which Dr. J. Powell Williams, 1000 West Grace Street, Richmond, is Chairman, will be glad to see that comfortable accommodations are secured for any physician who may write. Dr. Williams and his Committee will take pleasure in being of service in any way they can to physicians contemplating attending the Richmond meeting. In writing the hotel, or Dr. Williams, state the kind and price of accommodations desired, the day reservation is to become effective, and if possible give time of day reservation is to begin.

HOTEL JOHN MARSHALL, 5th Street at East Franklin
(General Headquarters)

Single, shower bath, $3.00 to $5.00
Single, tub bath, $3.50 to $6.00
Double (double bed), tub or shower, $5.00 to $7.00
Double (twin beds), combination tub and shower, $6.00 to $10.00

JEFFERSON HOTEL, West Franklin at Jefferson
(Hotel Headquarters for American Society of Tropical Medicine; National Malaria Committee; Southern Branch, American Public Health Association; and Southern Section, Society for Experimental Biology and Medicine; and Woman's Auxiliary)

Single, without bath, $2.50
Double (double bed), without bath, $4.00
Single, with bath, $3.00
Double (double bed), with bath, $5.00
Double (twin beds), with bath, $6.00 to $8.00

HOTEL RICHMOND, 9th Street at East Grace

Single, without bath, $1.50 to $2.50
Double, without bath, $3.00 to $4.00
Double (two double beds), without bath, $6.00
Single, with bath, $2.50 to $4.00
Double (double bed), with bath, $4.00 to $6.00
Double (two double beds), with bath, $10.00
Double (twin beds), with bath, $5.00 to $9.00

MURPHY'S HOTEL, East Broad at 8th Street
In Main Building

Single, without bath, $2.00
Double, without bath, $3.00
Single, with bath, $2.50 and $3.00
Double, with bath, $3.50 and $4.00
Double (twin beds), with bath, $4.50 and $6.00

In Grace Street Annex

Single, without bath, $1.50
Double, without bath, $2.50
Single, with bath, $2.00 and $2.50
Double, with bath, $3.00 and $3.50
Double (twin beds), with bath, $4.00

HOTEL RUEGER, 9th and Bank Streets

Single, without bath, $2.00
Double, without bath, $3.00 and $3.50
Single, with bath, $2.75 and $3.25
Double, with bath, $4.00 and $5.00

HOTEL WILLIAM BYRD, West Broad Street at Davis Avenue

Single, with wash basin and toilet, $2.00 and $2.50
Double, with wash basin and toilet, $3.00 to $4.00
Double (twin beds), with wash basin and toilet, $4.00 and $5.00
Single, with bath, $3.00 to $4.00
Double, with bath, $4.00 to $6.00
Double (twin beds), with bath, $5.00 to $8.00

AFTER RICHMOND, WASHINGTON

THE POST-MEETING DAY IN WASHINGTON

The nearness of the Nation's Capital to the Richmond meeting, and the many things of interest there, seem to make it advisable to have a post-meeting day in Washington on Saturday, November 18, following the close of the Richmond meeting on Friday afternoon.

Realizing that those who go to Washington have had at Richmond four days of planned activities, scientific and social, it is believed those who do go to Washington would prefer to plan their own program for their day in the Nation's Capital. An attempt has been made to make available the things that might be of special interest to physicians and their ladies.

The White House. The White House is open to visitors on Saturday from 10:00 a. m. to 1:00 p. m. It is hoped, if the President is in Washington at that time, that the physicians and their ladies may be received by President and Mrs. Roosevelt.

Capitol and Public Buildings. Most of the public buildings close at 1:00 p. m. on Saturday, but the Capitol and the Smithsonian Institution are open until 4:00 p. m., and the Library of Congress all afternoon and evening.

Surgeon General's Library and Walter Reed Hospital, U. S. Army. Open house will be maintained at the Surgeon General's Library and at Walter Reed Hospital, through the courtesy of the Surgeon General of the United States Army, Major General Robert U. Patterson. As is so well known to the medical profession, the Surgeon General's Library is the most complete medical library in the world. In addition to the wealth of information available in the Library, there are on exhibit hundreds of pathological specimens, and other medical work of great interest to physicians. The staff at Walter Reed Hospital will take great pleasure in taking visiting physicians over the institution and showing the work being done there. Ordinarily the Surgeon General's Library closes at 1:00 p. m. on Saturday, but the Surgeon General has arranged for it to remain open until the usual week day closing hour of 4:30 p. m.

U. S. Navy Hospital. Open house will be maintained at the Navy Hospital through the courtesy of Rear Admiral P. S. Rossiter, Surgeon General, U. S. Navy. The staff will take pleasure in taking visiting physicians over the institution and showing work being done there.

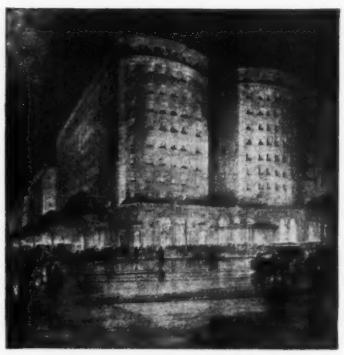
U. S. Public Health Service. The United States Public Health Service is now domiciled in its new building, one of the most attractive of the newer government buildings. Open house will be maintained at the Public Health Service Building and at the Institute of Health, formerly known as the Hygienic Laboratory, through the courtesy of Dr. Hugh S. Cumming, Surgeon General, U. S. Public Health Service. The staff will take pleasure in taking visiting physicians over the buildings and showing the work being done there. These buildings close at 1:00 p. m. on Saturday.

Medical Colleges. Washington's two Class A medical colleges, Georgetown University School of Medicine, Dr. William Gerry Morgan, Dean, and George Washington University School of Medicine, Dr. Earl B. McKinley, Dean, will welcome to their institutions any who may wish to visit them and become better acquainted with the work being done by them. The alumni of these schools attending the Richmond meeting are especially invited to come on to Washington to visit their alma maters.

Sight-Seeing. There is so much to see in Washington, so many things of interest, that it has been thought best to attempt no planned sight-seeing. There are sight-seeing busses to points of interest leaving from the post-meeting hotels at regular intervals. The taxi cab rates of Washington are low enough to make feasible individual trips to places of special interest.

Visiting Ladies. No planned entertainment is being provided for visiting ladies. A hospitality committee composed of the wives of Washington physicians will be at the headquarters hotel, the Mayflower, to welcome the visiting ladies and to be of service to them in any way possible. It has not been thought feasible to arrange any special entertainment for visiting ladies.

Hotels. The Mayflower Hotel, one of Washington's finest, most popular and best located, is general headquarters; rates, single, $3.50; double, $5.00 to $6.00. Other good hotels conveniently located and approved for this post-meeting day are: The Willard, single, $3.50; double, $5.00; and the Washington, single, $3.50 to $4.50; double, $4.00 to $7.00.



The Mayflower Hotel,
Headquarters for Post-Meeting Day.

Railroad Rates. Reduced round trip rates have been granted for the Richmond meeting and the post-meeting day in Washington, the rates applying to Richmond or to Washington via Richmond. The rate is one and one-third fare for the round trip, going and returning the same way or going one way and returning another, dates of sale November 10-16, final limit thirty days. The rate is on the *Identification Certificate Plan,* certificates issued by the Southern Medical Association, Empire Building, Birmingham, Alabama.

The Washington Committee. The local committee having in charge the post-meeting day activities, appointed by the Southern Medical Association, is composed of Dr. Thomas A. Groover, Chairman, 1835 Eye Street, N. W.; Dr. Cary T. Grayson, Vice-Chairman, 1835 Eye Street, N. W.; Dr. William Thornwall Davis, 927 Farragut Square; and Dr. William Gerry Morgan, 1801 Eye Street, N. W. They will be glad to be of service individually or collectively to any who plan to attend or do attend the post-meeting day in Washington.

So after Richmond, it's Washington, Saturday, November 18.

THE WHITE HOUSE AND ITS OCCUPANTS*

A group of some of the foremost engineers in the world were coming to Washington a few weeks ago for one day.

"What one place in the nation's capital had you rather see than any other?" the Committee on Entertainment asked these distinguished guests.

The answer was unanimous, "The White House."

Always, the most interesting sight of all visitors who come to Washington is the place where the President lives. Perhaps no building in the United States has such an appealing personality—a personality that is ever changing and yet retains, in some nook or corner, a trait of every President and First Lady who have graced its portals.

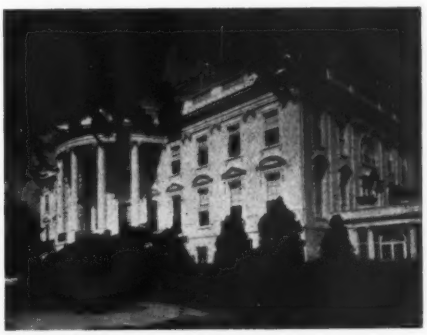
The White House was the first public building erected at the new capital. Washington selected the site and laid the cornerstone in 1792. It became known as the "White House" shortly after it was burned by British soldiers in 1814. At that time only the walls were left standing and when it was restored the stone was painted white to cover the marks left by the flames.

Worthy of housing the nation's executive and his family, the White House opens its doors every day to hundreds of visitors from the four corners of the world.

Visitors these days are all most anxious to see the changes wrought in the White House since the arrival of the Roosevelts. And guides will tell you that, as far as interest in the various rooms is concerned, even the famous East Room, or state parlor, with its white and gold decorations, has been relegated to second place since the building of the blue tile swimming pool. Everybody wants to see the beautiful, yet simply constructed pool, where the President takes his daily swim. And another interesting change since last November may be seen in the President's executive offices. Never before has the plainness of the walls in the most important office in the country been relieved with pictures or decorations of any sort. But soon after President Roosevelt was inaugurated he not only moved swiftly in meeting national issues, but also in getting his many Hudson River Valley and old ship prints hung on the walls of his office.

Among other interesting rooms is the President's reception room. Its walls are covered with blue corded silk and the show piece is the clock of gold presented by Lafayette to Washington.

The green room has walls hung with green velvet. In front of the white marble mantel is a screen of old Gobelin tapestry in frame of gold surmounted by a spreadeagle presented by the Empress of Austria to Mrs. Grant.



The White House.

Paneled in dark English oak is the state dining room which is the scene of three important state dinners annually: those for the Diplomatic Corps, the Cabinet and the Supreme Court. The massive mahogany table will seat 100 guests. Perhaps the most popular feature of the room is the china, numbering 1,500 pieces, decorated by Theodore R. Davis, the war artist.

As interesting as the White House itself are members of its staff. There is Francis Robinson, "Robbie" to everybody, presidential chauffeur since 1910, when he began driving William H. Taft around in a steam-

*By Curtis Hodges, Executive Director of the Greater National Capital Committee of the Washington (D. C.) Board of Trade.

powered automobile. Warren G. Harding, Robbie says, used the automobile perhaps more than any other President. Mr. Harding liked to ride fast. So does Mr. Roosevelt when the opportunity presents itself. It was not so with Calvin Coolidge. Robbie says Mr. Coolidge preferred slow driving.

Then there is Mrs. Henry Nesbitt, housekeeper for the Roosevelts. Her slim shoulders easily assume the enormous responsibility of housekeeping for the presidential family. Mrs. Nesbitt met Mrs. Roosevelt through baking. The First Lady bought one of her loaves of whole wheat bread, made from especially ground flour, once in New York City. And after that she did much baking for the Roosevelt family. Mrs. Nesbitt possesses absolute confidence in her own methods and views dubiously the ideas of others.

"Mac," colored valet to President Roosevelt, takes his job seriously. After returning to the White House after a cruise recently, the President told his friends that he was shocked to find that he had gained seven pounds. He announced with some determination that he was going to see to it at once that he returned to his customary weight of 175 pounds. He proposed to accomplish this by dieting and swimming.

Having so many other things to think about, the President in the meantime forgot all about his resolution. But the faithful Mac did not. After looking on for a couple of days and noting no signs on the President's part of cutting down on his meals, he took it upon himself to take off those seven extra pounds. He said nothing to the President, but when he delivered the breakfast tray the meal was minus one egg, one slice of bacon and one slice of toast. Mac stood by waiting for some comment or question from the President, but there was none. Mac was delighted and said nothing to Mr. Roosevelt, but immediately told others of the official family what he had done.

The hospitality in the White House is quite noticeable. For the guides, as well as everyone else connected with the place where the President lives, are a part of the White House. And a mere walk through the rooms is all it takes to realize why the home of the President is of such world-wide interest.

Coming from his palatial home in Hyde Park, it did not take the President long to become attached to his new home. Just recently, while he was away, there were a number of suggestions that this and that be done to the various rooms in Hyde Park. And President Roosevelt sent the following message:

"Leave the rooms alone. I like the old place as I left it."

PROGRAM, SOUTHERN MEDICAL ASSOCIATION

Twenty-Seventh Annual Meeting, Richmond, Virginia

November 14-17, 1933

PROGRAM OF ENTERTAINMENT

WEDNESDAY, NOVEMBER 15, 9:30 P. M. Reception for President, members and guests of the Southern Medical Association, followed by a grand ball, to be held at the Mosque.

Golf and Trap Shooting. See page 1008 for details.

Entertainment for Visiting Ladies

Mrs. Stuart McGuire, Chairman, Committee for Ladies' Entertainment, announces the following activities and entertainment for visiting ladies:

TUESDAY, NOVEMBER 14, 4:00-6:00 P. M. Tea at the home of Dr. and Mrs. Douglas VanderHoof, 5501 Cary Street Road, Mrs. VanderHoof, hostess.

WEDNESDAY, NOVEMBER 15, 9:30 A. M. Opening Session of Auxiliary to Southern Medical Association, Ballroom, Jefferson Hotel, followed by the regular Auxiliary Luncheon at 12:30. Luncheon tickets, 75c.

WEDNESDAY, NOVEMBER 15, 9:30 P. M. Reception for President, members and guests of the Southern Medical Association, followed by a grand ball at the Mosque.

THURSDAY, NOVEMBER 16, 9:30 A. M. Trip to historic Williamsburg and possibly to historic Jamestown, with luncheon at Williamsburg, motorcade leaving from the Jefferson Hotel.

FRIDAY, NOVEMBER 17, 9:00 A. M. TO 12:00 NOON. Golf tournament at the Country Club of Virginia.

Sponsors for Visiting Ladies

The wives of the members of the Richmond Academy of Medicine will serve as sponsors. They will be in the lobbies of the principal hotels and will give any desired information and render any service possible to visiting ladies.

WOMEN PHYSICIANS

Wednesday, November 15, 6:00 p. m.

Gypsy Tavern

The nineteenth annual meeting of the Women Physicians of the Southern Medical Association will be held at the Gypsy Tavern, Boulevard and Grace, Richmond, Wednesday, November 15, at 6:00 p. m.

The business meeting will be followed by a dinner, with the Chairman, Dr. Ray K. Daily, Houston, Texas, presiding. Program features are being arranged.

Women physicians attending the Richmond meeting are invited on the all-day trip to historic Williamsburg on Thursday, the entertainment provided the visiting ladies. Additional informal entertainment is being planned.

Dr. Pauline Williams, Medical College of Virginia, Richmond, is local Chairman for Women Physicians.

WOMAN'S AUXILIARY TO THE SOUTHERN MEDICAL ASSOCIATION

Headquarters: Jefferson Hotel

Wednesday, November 15

The Woman's Auxiliary to the Southern Medical Association, Mrs. A. A. Herold, Shreveport, Louisiana, President, will hold its annual meeting at Richmond, Virginia, Wednesday, November 15, at 9:30 a. m., in the Auditorium of the Jefferson Hotel, to be followed by a luncheon at the same hotel, beginning at 12:30 p. m., and continuing and concluding the annual Auxiliary meeting. Wives, mothers, sisters and daughters of all physicians attending the Southern Medical Association meeting are urged to be present.

The Executive Board will meet Tuesday, November 14, at 10:00 a. m., and the post-session meeting of the Board will be held Wednesday, November 15, at 4:30 p. m., both at the Jefferson Hotel.

See pages 1007-1008 for complete program.

GENERAL HEADQUARTERS

Registration, Information, Mail, Etc.

Hotel John Marshall, Ballroom (off Main Lobby)

The General Headquarters (Registration, Information, Mail, Etc.) will be located at the Hotel John Marshall in the ballroom just off the main hotel lobby, where badges, programs and invitations to social functions will be issued, and matters concerning dues, changes of address, errors, etc., will be given attention.

The Information Bureau and Convention Post Office are in connection with the Registration Bureau. Competent persons are in charge to give any information or serve the physicians in any way possible. Ask anything you wish to know.

Be sure to register before attending the sessions.

Members of the Association are requested to bring their membership-receipt (blue) card and present it when registering. This will greatly facilitate the registration.

HOME OF THE RICHMOND ACADEMY OF MEDICINE

The Joseph L. Miller Library

The Richmond Academy of Medicine, host to the Southern Medical Association, has its own building, the only one of its kind in the South. It is of attractive architecture and complete in every respect, and is located at the corner of Twelfth and Clay Streets.

The Richmond Academy of Medicine will maintain open house during the four days of the Southern Medi-

cal Association meeting from 9:00 a. m. until 6:30 p. m. On the main floor are the lounge and reading room, the library and the offices of the Academy and the Medical Society of Virginia; on the second floor is a spacious auditorium; and in the basement is the dining room and kitchen. The building alone and its furnishings are well worth a visit.

Housed in the Richmond Academy of Medicine Building is the Joseph L. Miller Library, a donation to the Academy by Dr. Joseph Lyons Miller, of Thomas, West Virginia, an alumnus of the University College of Medicine, Richmond, now the Medical College of Virginia. The library contains more than two thousand volumes, all published prior to 1800, more than four thousand manuscripts, prints, autographed letters, engravings, silhouettes and relics of former centuries, many of them very old and very valuable. This is one of the largest and most valuable private collections in the United States.

The Richmond Academy of Medicine extends a most cordial invitation to all physicians attending the Southern Medical Association meeting to visit and make themselves at home in their building and in the Joseph L. Miller Library. A trip to Richmond would not be complete without a visit to the Academy Building and the Miller Library.

AMERICAN ACADEMY OF PEDIATRICS

Wednesday, November 15, 9:30 a. m.

Members, state chairmen, and members of the Committee of Region 2 of the American Academy of Pediatrics, together with the state health officers of the Southern states, will meet for a Conference on Wednesday, November 15, 9:30 a. m., in a private dining room on the mezzanine floor of the Hotel John Marshall, Richmond.

On Wednesday evening at 6:30 o'clock at the Westmoreland Club there will be a dinner, a joint activity of the members of Region 2 of the American Academy of Pediatrics and the Section on Pediatrics of the Southern Medical Association. Price per plate, $2.50.

LUNCHEON CLUBS

The following luncheon clubs of Richmond extend most cordial invitations to all physicians in attendance upon the Southern Medical Association meeting, who are members of these clubs in their home cities, to lunch with them:

Rotary Club, Tuesday, November 14, 6:00 p. m., Hotel John Marshall.

Kiwanis Club, Monday, November 13, 6:00 p. m., Hotel John Marshall.

Optimist Club, Monday, November 13, 1:00 p. m., Hotel John Marshall.

Cosmopolitan Club, Tuesday, November 14, 6:00 p. m., Hotel John Marshall.

Lions Club, Wednesday, November 15, 1:00 p. m., Hotel John Marshall.

Civitan Club, Thursday, November 16, 1:00 p. m., Murphy's Hotel.

Monarch Club, Thursday, November 16, 6:00 p. m., Hotel John Marshall.

Sphinx Club, Thursday, November 16, 1:00 p. m., Hotel Richmond or Hotel John Marshall.

ALUMNI REUNIONS

Thursday, November 16, 7:00 p. m.

Thursday has been set aside for Alumni Reunions. Here follows the names of the schools for which tentative arrangements have been made for alumni dinners and the name of the Richmond physician who will act for each school group. Where no name is given following the name of the school, the Chairman of the Committee will act for that school group. Dr. H. Hudnall Ware, Jr., 828 W. Franklin Street, Richmond, is Chairman of the Alumni Reunion Committee. Arrangements will be made for other schools not listed below if a dinner is desired and the chairman of the committee is notified.

Medical College of Virginia, Richmond, Dr. C. L. Outland, 312 North Ninth Street.

University of Virginia School of Medicine, University, Dr. R. Angus Nichols, Jr., 1028 West Franklin Street.

George Washington University School of Medicine, Washington, Dr. B. B. Bagby, State Office Building.

Georgetown University School of Medicine, Washington.

Johns Hopkins University School of Medicine, Baltimore, Dr. S. A. Anderson, 2326 W. Grace Street.

University of Maryland School of Medicine and College of Physicians and Surgeons, Dr. Theodore Kohn, 2816 Monument Avenue.

University of Alabama School of Medicine, University.

Emory University School of Medicine, Atlanta.

University of Georgia Medical Department, Augusta.

University of Louisville School of Medicine, Louisville, Dr. C. T. Wilfong, 17 North Granby Street.

Tulane University School of Medicine, New Orleans, Dr. M. O. Burke, 204 East Franklin Street.

Vanderbilt University School of Medicine, Nashville.

University of Tennessee School of Medicine, Memphis.

Medical College of the State of South Carolina, Charleston.

University of West Virginia School of Medicine, Morgantown.

University of Pennsylvania School of Medicine, Philadelphia, Dr. G. Paul LaRoque, Memorial Hospital.

Jefferson Medical College, Philadelphia, Dr. James Hunt Royster, Westbrook Sanatorium.

Harvard University Medical School, Boston, Dr. L. E. Sutton, Jr., Medical College of Virginia.

Rush Medical College (University of Chicago), Dr. Fred J. Wampler, Medical College of Virginia.

University of Michigan School of Medicine, Ann Arbor, Dr. Warren T. Vaughan, Professional Building.

Columbia University College of Physicians and Surgeons, New York, Dr. H. Wallace Blanton, 828 West Franklin Street.

MEDICAL FRATERNITIES

Here follow the names of the medical fraternities with chapters at the Medical College of Virginia, Richmond, with the address and 'phone number of the chapter house, and name of the president of the chapter:

Phi Beta Pi, 1001 East Marshall Street, 2-8016, Pete N. Pastore.

Phi Rho Sigma, 501 South Davis Avenue, 5-1375, Chester N. Riley.

Phi Chi, 808 West Franklin Street, 4-0511, Robert L. Montgomery.

Alpha Kappa Lappa, 602 West Franklin Street, 3-3782, F. H. Goodwin.

Omega Upsilon Phi, 1824 Monument Avenue, 5-5089, William R. Hutchinson.

Theta Kappa Psi, 821 West Grace Street, 4-2652, W. H. Matthews.

Phi Delta Epsilon, 512 West Franklin Street, 3-1429, Alfred Abramson.

Alpha Epsilon Iota, McGuire Hall, 3-9051, Miss Alice Elliott.

In connection with the Southern Medical Association meeting, it is probable that some of the fraternities will arrange for luncheons of their fraternity groups, these luncheons in all probability to be held on Thursday, November 16, at 12:30 p. m.

EX-INTERNS' ASSOCIATION

The Ex-Interns' Association of St. Elizabeth's Hospital, Richmond, will have their annual meeting this year as a luncheon at Westmoreland Club, Thursday, November 16, 12:30 p. m.

SCIENTIFIC EXHIBITS

Hotel John Marshall, Mezzanine Floor

Exhibits will be open Tuesday, Wednesday, Thursday and Friday, November 14-17, from 8:00 a. m. until 6:00 p. m., except Friday, when they will close at 2:00 p. m.

Dr. Seale Harris, Birmingham, Ala.: Epileptiform attacks and hyperinsulinism.

Dr. Lay Martin, Baltimore, Md.: Some organic and inorganic components of gastric juice in normal and pathological states.

Dr. L. W. Diggs, Pathological Institute, University of Tennessee School of Medicine, Memphis, Tenn.: Sickle cell anemia.

Dr. Glenville Giddings, Atlanta, Ga.: Child's sleep.

Dr. W. Ambrose McGee, Richmond, Va.: Comparison of Schilling differential count, sedimentation time and lymphocyte-monocyte ratio in tuberculosis of childhood.

Dr. Edward C. Vogt and Dr. Charles F. McKhann, Children's Hospital, Boston, Mass.: Lead poisoning in children: Differential diagnosis and roentgenological findings.

AFTER RICHMOND, WASHINGTON

See page 982 for complete information about the post-meeting day in Washington, Saturday, November 18.

Section on Radiology—a Section Exhibit:

(1) Dr. Ralph S. Bromer, Bryn Mawr, Pa.: Bone diseases of disturbed metabolism in monkeys and man.

(2) Dr. Cornelius G. Dyke, the Neurological Institute, New York, N. Y.: Encephalography.

(3) Dr. Edgar M. McPeak, Washington, D. C.: Roentgen therapy in hyperparathyroidism.

(4) Dr. Claude Moore, Washington, D. C.: A roentgenologic demonstration of cysts, polyps and polypoid tissue of the nasal accessory sinuses.

(5) Dr. Fred M. Hodges and Dr. L. O. Snead, Richmond, Va.: Radiation therapy of certain non-malignant conditions.

(6) Dr. Robert J. Reeves, Durham, N. C.: Fungus infections in the lungs.

(7) Dr. David T. Smith, Durham, N. C.: Common fungus diseases.

(8) Dr. Wright Clarkson and Dr. Allen Barker, Petersburg, Va.: Biopsy in radiotherapy.

(9) Dr. James M. Martin and Dr. Charles L. Martin, Dallas, Tex.: Irradiation therapy in cancer of the lip and mouth.

Section on Urology—a Section Exhibit:

(1) Dr. W. W. S. Butler, Jr., and Dr. C. H. Peterson, Roanoke, Va.: Roentgen ray study of prostatic urethra before and after resection.

(2) Dr. R. M. LeComte and Dr. Fred O. Coe, Washington, D. C.: Urograms of upper urinary tract injuries.

(3) Dr. Thomas D. Moore, Memphis, Tenn.: Ureter in serial pyelograms.

(4) Dr. Lawrence R. Wharton, Baltimore, Md.: Innervation of the human ureter. Anatomical dissections.

(5) Dr. Roy J. Holmes and Dr. M. M. Coplan, Miami, Fla.: Urologic diagnosis.

(6) Dr. Edgar G. Ballenger, Dr. Omar F. Elder and Dr. Harold P. McDonald, Atlanta, Ga.: Urology.

(7) Dr. W. Calhoun Stirling, Washington, D. C.: Cancer of the prostate.

(8) Dr. A. I. Folsom and Dr. J. C. Alexander, Dallas, Tex.: Prostatic resections.

(9) Dr. Hamilton W. McKay and Dr. Robert W. McKay, Charlotte, N. C.: The general field of urology with special emphasis on urinary lesions in infancy and childhood.

(10) Dr. Austin I. Dodson, Richmond, Va.: Transplantations of the ureter into the sigmoid.

Section on Dermatology and Syphilology—a Section Exhibit:

(1) Dr. J. L. Kirby-Smith, Jacksonville, Fla.: Creeping eruption.

(2) Dr. Harry M. Robinson, Baltimore, Md.: Arsphenamine dermatitis and miscellaneous dermatological conditions.

(3) Dr. H. H. Hazen, Washington, D. C.: Photographs of dermatological cases.

(4) Dr. Fred D. Weidman, Philadelphia, Pa.: Cutaneous cancer.

(5) Dr. Chas. O. King, Birmingham, Ala.: Sportotrichosis.

(6) Dr. D. C. Smith, Dr. W. A. Brumfield, Jr., and Dr. J. B. Hawes, University, Va.: Transmission sequence of syphilis.

Dr. Roy R. Kracke, Emory University, Ga.: Monocytic leukemia: a general review with microscopic preparations from twenty cases. (Material assembled from the Hematological Registry of the American Society of Clinical Pathologists.)

University of Tennessee School of Medicine, Pathological Institute, Dr. H. C. Schmeisser, Director, Memphis, Tenn.: Lantern slides of clinical and anatomical lesions.

Dr. Paul L. Day, Dr. William C. Langston and Dr. K. W. Cosgrove, Little Rock, Ark.: Nutritional cataract; ocular changes in vitamin G deficiency.

Dr. E. T. Gatewood and Dr. Thomas E. Hughes, Richmond, Va.: (1) Foreign bodies removed from food and air passages; and (2) X-ray films showing sinus disease.

Dr. Elbyrne G. Gill, Roanoke, Va.: (1) Foreign bodies in air and food passages; and (2) X-rays and pictures of eye, ear, and sinus lesions.

Dr. Emanuel U. Wallerstein, Medical College of Virginia, Memorial Hospital, Richmond, Va.: Foreign bodies removed from air and food passages.

Dr. Howard Leigh Stitt and Dr. C. E. Wooding, Cincinnati, Ohio: Bronchial lavage.

Dr. Addison G. Brenizer, Charlotte, N. C.: (1) The thyroid gland; (2) Evolution of thyroidectomy; (3) Anastomoses of the gastro-intestinal tract; and (4) Skin, bone and fascia grafting.

Dr. John S. Horsley, Jr., Richmond, Va.: Full thickness skin grafts.

Dr. C. C. Coleman and Dr. W. G. Crutchfield, Richmond, Va.: Neurological surgery.

Dr. Herbert J. Rinkel, Kansas City, Mo.: The allergic diseases; a diagrammatic outline of the various hypersensitive phenomena.

Dr. W. W. Duke, Kansas City, Mo.: Physical allergy.

Dr. Warren T. Vaughan, Richmond, Va.: Allergy.

Dr. Ray M. Balyeat, Oklahoma City, Okla.: Allergy, with special reference to migraine.

Dr. Joseph Bear, Richmond, Va.: Obstetrical curiosities and antiques.

Dr. Frank L. Apperly, Medical College of Virginia, Richmond, Va.: Specimens of clinical interest obtained at biopsy and autopsy.

Dr. Oscar L. Hite, Medical College of Virginia, Richmond, Va.: Valuable and unusual diagnostic aids and therapeutic procedures in peptic ulcer.

Dr. R. Neale and Dr. J. C. Forbes, Medical College of Virginia, Richmond, Va.: A new macro- and microtitrimetric apparatus.

Dr. Rolland J. Main, Medical College of Virginia, Richmond, Va.: Diurnal changes in alveolar carbon dioxide, and its clinical determination.

Dr. Harvey B. Haag and Dr. J. D. Woodley, Medical College of Virginia, Richmond, Va.: Comparison of the cat method and a pigeon method for the estimation of digitalis potency.

Dr. W. R. Bond, Dr. H. B. Frischkorn and Dr. W. C. Reed, Medical College of Virginia, Richmond, Va.: Amplification of heart sounds; recording reaction time.

Dr. Fred J. Wampler and Dr. Preston Maxwell, Medical College of Virginia, Richmond, Va.: Osteomalacia.

Mr. Max Freydeck, Medical College of Virginia, Richmond, Va.: Scientific photography.

Board of Registry, American Society of Clinical Pathologists, Denver, Colo.: The training and registration of laboratory technicians.

United States Public Health Service, Washington, D. C.: (1) Endemic typhus fever and Rocky Mountain spotted fever; (2) Silicosis; and (3) Industrial dermatoses.

Federal Food and Drug Administration, U. S. Department of Agriculture, by Mrs. F. C. Dugan, Director, Bureau of Foods, Drugs and Hotels, Kentucky State Board of Health, Louisville, Ky.: Limitations of the present Federal Food and Drug Act.

American Society for the Control of Cancer, New York, N. Y.: Cancer of the breast.

American Social Hygiene Association, New York, N. Y.: The modern conception of gonorrhea.

TECHNICAL EXHIBITS

Hotel John Marshall, Ballroom and Lobby

The Technical Exhibits have a real scientific value and physicians who wish to keep abreast of the times and know the latest in drugs and medical appliances should spend some time with these exhibits. A large amount of useful information can be procured at these exhibits. Many exhibitors have nothing for sale, the representatives of the firms being there to give the latest information regarding their products. Those who have items for sale will gladly give information regarding them. *Be sure to visit the Technical Exhibits.*

PROGRAM

The following sections, allied and visiting associations, compose the program for the Richmond meeting. The complete preliminary program for each of these meetings will be found on succeeding pages following pro-

grams of the general clinical sessions, the general sessions and the allergy clinic and round table.

Section on Medicine.

Section on Pediatrics.

Section on Gastroenterology.

Section on Pathology.

Section on Neurology and Psychiatry.

Section on Radiology.

Section on Dermatology and Syphiololgy.

Section on Surgery.

Section on Bone and Joint Surgery.

Section on Gynecology.

Section on Obstetrics.

Section on Urology.

Section on Railway Surgery (Southern States Association of Railway Surgeons).

Section on Ophthalmology and Otolaryngology.

Section on Public Health.

National Malaria Committee (Conference on Malaria).

American Society of Tropical Medicine.

Southern Branch, American Public Health Association.

Southern Section, Society for Experimental Biology and Medicine.

Section on Medical Education.

EXCERPTS FROM THE BY-LAWS

Sec. 3. Except by special order, the order of exercises, papers and discussions as set forth in the official program shall be followed from day to day until it has been completed, and all papers omitted will be recalled in regular order.

Sec. 4. No address or paper before the Association, or any of its sections, except the addresses of the President and Orators, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than one time on any subject, provided each essayist be allowed ten minutes in which to close the discussion.

Sec. 5. All papers before the Association, or any of its sections, shall be the property of the Association. Each paper shall be deposited with the Secretary when read, or within ten days thereafter.

Sec. 6. No paper shall be published except upon recommendation of the Publication Committee, which shall consist of the Secretary as Chairman, with the Chairman and Secretary of each section as its constant members.

GENERAL CLINICAL SESSIONS

Hotel John Marshall, Roof Garden

The President, Irvin Abell, Louisville, Kentucky, presiding.

Each presentation will be limited strictly to a maximum of twenty minutes.

Tuesday, November 14, 9:45 a. m.

Hotel John Marshall, Roof Garden

1. *Neurological Surgery:* "Meniere's Disease," C. C. Coleman, Richmond.
2. *Medicine:* "The Treatment of Pellagra," James H Smith, Richmond.
3. *Medicine:* "Cirrhosis of the Liver," E. L. Kellum, Richmond.
4. *Surgery:* "Carcinoma of the Cervix Uteri," W. Lowndes Peple, Richmond.
5. *Ophthalmology:* "The Treatment of the Red and Painful Eye by the General Practitioner," Emory Hill, Richmond.
6. *Pediatrics:* "Nephritis Complicating Impetigo," Lee E. Sutton, Jr., Richmond.
7. *Bone and Joint Surgery:* "Acute Injuries of the Knee Joint," H. Page Mauck, Richmond.
8. *Obstetrics:* "Eclampsia," M. Pierce Rucker, Richmond.

Adjourn for Lunch.

Tuesday, November 14, 2:00 p. m.

Hotel John Marshall, Roof Garden

9. *Radiology:* "The Diagnostic Value of Air Beneath the Diaphragm in Gastric and Intestinal Perforation" (Lantern Slides), D. D. Talley, Richmond.
10. *Surgery:* "Repair of Extensive Skin Defects about Joints," John S. Horsley, Jr., Richmond.
11. *Medicine:* "Arthritis," W. H. Higgins, Richmond.
12. *Dermatology:* "Exfoliative Dermatitis Due to Contact Absorption," Thomas W. Murrell, Richmond.
13. *Gynecology:* "Clinical Application of Recent Observations on the Study of Pelvic Fascia" (Lantern Slides), Stuart N. Michaux, Richmond.
14. *Obstetrics:* "Pyelitis in Pregnancy," B. H. Gray, Richmond.
15. *Urology:* "Pyelitis in Pregnancy," Joseph F. Geisinger, Richmond.
16. *Otolaryngology:* "The Esophagus: Some Points of Interest to the General Practitioner" (Lantern Slides), E. U. Wallerstein, Richmond.
17. *Medicine:* "Cardiovascular Diseases," W. B. Porter, Richmond.
18. *Proctology:* "Demonstrations and Discussion of Proctological Problems" (Lantern Slides), W. W. Rixey, Richmond.

GENERAL CLINICAL SESSIONS

Hotel John Marshall, Roof Garden

The President, Irvin Abell, Louisville, Kentucky, presiding.

Presentations will be limited strictly to a maximum of twenty-five minutes, with three-minute intermission between each presentation.

Wednesday, November 15, 9:30 a. m.

Hotel John Marshall, Roof Garden

1. *Tropical Medicine:* "Some Preliminary Observations on Naturally Induced Malaria," Mark F. Boyd, Rockefeller Foundation, Tallahassee, Fla.
2. *Navy:* "Peace Time Activities of the Medical Department of the United States Navy," P. S. Rossiter, Rear Admiral, U. S. Navy; Surgeon General, U. S. Navy, Washington, D. C.
3. *Medicine:* "The Resistance of Fixed Tissue Cells" (Lantern Slides), Wm. deB. MacNider, Kenan Professor of Pharmacology, University of North Carolina, Chapel Hill, N. C.
4. *Ophthalmology:* "The Role of the Crystalline Lens in the Function of Vision in Men and in the Lower Animals: Practical Consideration of Cataracts in the Human Subject," John O. McReynolds, President, Pan-American Medical Association, Dallas, Tex.
5. *Medicine:* "The Clinical Value of Studies on Peripheral Circulation," George Morris Piersol, Professor of Medicine, University of Pennsylvania Graduate School of Medicine, and President of the American College of Physicians, Philadelphia, Pennsylvania.
6. *Pediatrics:* "Some Therapeutic Procedures Based upon Recent Advances in Biological Chemistry" (Lantern Slides), W. McKim Marriott, Dean and Professor of Pediatrics, Washington University School of Medicine, St. Louis, Mo.

12:15—Adjourn for lunch.

Wednesday, November 15, 2:00 p. m.

Hotel John Marshall, Roof Garden

7. *Surgery:* "Abdominal Lesions: Their Signs and Symptoms" (Lantern Slides), Dean Lewis, Professor of Surgery, Johns Hopkins University School of Medicine, and President of the American Medical Association, Baltimore, Md.
8. *Urology:* "Some New Developments in Kidney Surgery," Oswald Swinney Lowsley, Department of Urology, James Buchanan Brady Foundation of the New York Hospital, New York, N. Y.
9. *Radiology:* "Radiation Therapy in the Treatment of Renal Neoplasms" (Lantern Slides), Charles A. Waters, Baltimore, Md.
10. *Surgery-Radiology:* "The Treatment of Gastric Cancer by Surgery and Radiation Therapy" (Lantern Slides), George T. Pack, Memorial Hospital, New York, N. Y.
11. *Gynecology:* "Diagnosis and Treatment of Functional Uterine Bleeding," Charles Mazer, Assistant Professor of Gynecology, University of Pennsylvania Graduate School of Medicine, Philadelphia, Pennsylvania.
12. *Obstetrics:* "Persistent Occipitoposteriors" (Lantern Slides), Edward Speidel, Clinical Professor of Obstetrics, University of Louisville School of Medicine, Louisville, Ky.
13. *Surgery:* "The Rational Treatment of Hyperthyroidism" (Lantern Slides), John deJ. Pemberton, Associate Professor of Surgery, University of Minnesota Graduate School of Medicine, Rochester, Minnesota.
14. *Bone and Joint Surgery:* "Backache" (Lantern Slides), W. Barnett Owen, Clinical Professor of Orthopedic Surgery, University of Louisville School of Medicine, Louisville, Ky.

5:40—Adjourn.

GENERAL PUBLIC SESSION

The Mosque

Wednesday, November 15, 8:00 p. m.

Music.

Called to order by the Chairman of the Committee on Arrangements, Fred M. Hodges, Richmond.

Invocation: Rev. J. J. Scherer, D.D., Pastor, English Lutheran Church, Richmond.

Address of Welcome in Behalf of the Richmond Academy of Medicine, Carrington Williams, President, Richmond.

Address of Welcome in Behalf of the City of Richmond and the State of Virginia, Hon. J. Fulmer Bright (M.D.), Mayor of Richmond.

Response to the Addresses of Welcome in Behalf of the Southern Medical Association, Frank K. Boland, Atlanta, Ga.

Address: "The Post-Meeting Day in Washington," Thomas A. Groover, Chairman of the Washington Committee, Washington, D. C.

Music.

President's Address: "J. Marion Sims: An Appreciation," Irvin Abell, Louisville, Ky.

Presentation of Research Medal.

Introductions.

New Business.

Announcements.

Adjournment.

LAST GENERAL SESSION

SHORT BUSINESS SESSION

Hotel John Marshall, Roof Garden

The President, Irvin Abell, Louisville, Kentucky, presiding.

Friday, November 17, 12:00 Noon

Hotel John Marshall, Roof Garden

Report of Committee on Awards for Scientific Exhibits.

Presentation of Trophies of Golf and Trap Shooting Tournaments.

Report of Council.

New and Unfinished Business.

Report of Nominating Committee.

Election of Officers.

Presentation of newly elected officers.

(This last General Session is being held in the same room with the Section on Obstetrics and will follow immediately the adjournment of that Section, if that Section has not adjourned by 12:00 noon.)

SECTION CLINICS

These clinics are being held in connection with the Sections. See Section program for details.

Wednesday, November 15

Section on Dermatology and Syphilology. See page 995.

Thursday, November 16

Section on Bone and Joint Surgery. See page 997.
Section on Urology. See page 999.
Section on Dermatology and Syphilology. See page 996.
Section on Obstetrics. See page 998.
Section on Gynecology. See page 998.
Section on Medicine (Clinico-Pathological Conference). See page 992.

Friday, November 17

Section on Urology. See page 1000.
Section on Radiology. See page 995.

ALLERGY CLINIC AND ROUND TABLE

Hotel John Marshall, Private Dining Room, Mezzanine Floor

Program arranged by Warren T. Vaughan, Richmond, by invitation.

Wednesday, November 15, 9:00 a. m.

First Period—Marion T. Davidson, Birmingham, Alabama, presiding.

1. *Clinic:* "Diagnostic Principles and Methods," Warren T. Vaughan, Richmond, Va.

Round Table Discussion:

(a) "Pollen Variations in Sections of the South," Hal M. Davison, Atlanta, Ga.
(b) "Bacterial Allergy," Grafton T. Brown, Washington, D. C.
(c) "Contact Allergy," Herbert J. Rinkel, Kansas City, Mo.
(d) "Allergy to Molds," Harry S. Bernton, Washington, D. C.

Second Period—Hal M. Davison, Atlanta, Georgia, presiding.

2. *Address:* "Food Sensitivity: Its Status in Allergy," George Piness, Los Angeles, Calif.

3. *Clinic:* "General Therapeutic Procedures," Warren T. Vaughan, Richmond, Va.

Round Table Discussion:

(a) "The Use of Iodized Oil Intratracheally," Dean B. Cole, Richmond, Va.
(b) "Treatment of the Nose and Throat," French K. Hansel, St. Louis, Mo.
(c) "Geographic and Other Factors Requiring Variations in Individual Treatment," Marion T. Davidson, Birmingham, Ala.

SECTION ON MEDICINE

Centenary Methodist Church, Sunday School Auditorium

Officers

Chairman—I. I. Lemann, New Orleans, La.
Vice-Chairman—Cabot Lull, Birmingham, Ala.
Secretary—Ernest B. Bradley, Lexington, Ky.
Hosts from the Richmond Academy of Medicine—James H. Smith, J. Morrison Hutcheson and W. B. Porter, Richmond.

Thursday, November 16, 9:00 a. m.

Centenary Methodist Church, Sunday School Auditorium

1. "Some Cardiac Irregularities and Their Management" (Lantern Slides), Leonard Hart, Meridian, Mississippi.

   Discussion opened by J. Edwin Wood, Jr., University, Va.

2. "Massive Renal Calculi in Association with Nutritional Diseases" (Lantern Slides), Groesbeck Walsh and E. M. Norton, Fairfield, Ala.

   Discussion opened by C. Sidney Burwell, Nashville, Tenn.; S. Chaille Jamison, New Orleans, La.

3. Chairman's Address: "A Study of Disease in the Negro" (Lantern Slides), I. I. Lemann, New Orleans, La.

4. "Thrombo-Angiitis Obliterans (Buerger's Disease) as a General Vascular Disease" (Lantern Slides), Thomas P. Sprunt, Baltimore, Md.

   Discussion opened by William B. Porter, Richmond, Virginia.

5. "Thrombophlebitis Migrans with Report of Two Fatal Cases and Autopsies" (Lantern Slides), Neuton S. Stern, Memphis, Tenn.

   Discussion opened by Harry C. Schmeisser, Memphis, Tenn.

6. "Clinico-Pathological Conference," O. H. Perry Pepper, Professor of Clinical Medicine, and Balduin Lucké, Professor of Pathology, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania.

   Election of Officers.

Friday, November 17, 9:00 a. m.

Centenary Methodist Church, Sunday School Auditorium

Joint Session with the Section on Gastroenterology

7. "Bacillary Dysentery in Relation to Ulcerative Colitis" (Lantern Slides), Thomas T. Mackie, New York, N. Y. (From the American Society of Tropical Medicine.)

   Discussion opened by Moses Paulson, Baltimore, Md.; Daniel N. Silverman, New Orleans, La.

8. "Symptoms and Signs Referred to the Appendix and Intestine: the Result of Disorders Elsewhere," James E. Paullin, Atlanta, Ga. (From the Section on Gastroenterology.)

   Discussion opened by Paul H. Ringer, Asheville, N. C.; Wm. R. Houston, Augusta, Ga.

9. "Referred Abdominal Symptoms from Pulmonary Tuberculosis," Lawrason Brown, Saranac Lake, N. Y. (From the Section on Gastroenterology.)

   Discussion opened by Chas. H. Cocke, Asheville, North Carolina.

10. "Abdominal Symptoms of Heart Disease" (Lantern Slides), John T. King, Baltimore, Md. (From the Section on Medicine.)

    Discussion opened by John Walker Moore, Louisville, Ky.

11. "Some Notes on Referred Digestive Symptoms," Thomas R. Brown, Baltimore, Md. (From the Section on Gastroenterology.)

    Discussion opened by Hugh J. Morgan, Nashville, Tennessee.

12. "Anginoid Symptoms of Gallbladder Disease," Walter E. Vest, Huntington, West Va. (From the Section on Medicine.)

    Discussion opened by Seale Harris, Birmingham, Alabama.

13. "Emotional and Nervous Factors in Symptoms of Abdominal Disease," W. W. Young, Atlanta, Ga. (From the Section on Medicine.)

    Discussion opened by Lawrence Woolley, Towson, Maryland.

SECTION ON PEDIATRICS

Centenary Methodist Church, Sunday School Auditorium

Officers

Chairman—Hugh L. Dwyer, Kansas City, Mo.
Vice-Chairman—Charles E. Conrad, Harrisonburg, Va.
Secretary—Luther W. Holloway, Jacksonville, Fla.
Hosts from the Richmond Academy of Medicine—J. B. Stone, Howard Urbach and T. D. Jones, Richmond.

Wednesday, November 15, 6:30 p. m.

Dinner, members of Region 2, American Academy of Pediatrics, and Section on Pediatrics, Westmoreland Club, $2.50 per plate.

Thursday, November 16, 2:00 p. m.

Centenary Methodist Church, Sunday School Auditorium

1. "Specially Produced Milk in the Solution of the Goiter Problem," William Weston, Columbia, South Carolina.

   Discussion opened by Edward Clay Mitchell, Memphis, Tenn.; Alfred A. Walker, Birmingham, Ala.

2. Chairman's Address: "The New Era in Prescribing," Hugh L. Dwyer, Kansas City, Mo.

3. "Immunity in Infants to Infectious Disease" (Lantern Slides), Charles F. McKhann, Assistant Professor of Pediatrics, Harvard University Medical School and Graduate School of Medicine, Harvard University Medical School, Boston, Massachusetts.

4. "The Training Desirable in Future Practitioners of Medicine in the Promotion of Child Health," J. H. Mason Knox, Director of Bureau of Child Hygiene, Baltimore, Md.

   Discussion opened by Lawrence T. Royster, University, Va.; Wilburt C. Davison, Durham, N. C.

5. "Treatment of Tuberculosis in Children" (Lantern Slides), James W. Bruce, Louisville, Ky.

   Discussion opened by Horton Casparis, Nashville, Tenn.; W. Ambrose McGee, Richmond, Va.

6. "A Study of Child's Sleep," Glenville Giddings, Atlanta, Ga.

   Discussion opened by M. Hines Roberts, Atlanta, Ga.; Warren W. Quillian, Coral Gables, Fla.

Friday, November 17, 2:00 p. m.

Centenary Methodist Church, Sunday School Auditorium

7. "Concentrated Feedings in the Nutrition of Premature Infants" (Lantern Slides), C. H. Webb, Shreveport, La.

   Discussion opened by L. R. DeBuys, New Orleans, La.; J. B. Stone, Richmond, Va.

8. "Facial and Dental Deformities Due to Perennial Nasal Allergy in Childhood," Ralph Bowen, Oklahoma City, Okla.

   Discussion opened by Warren T. Vaughan, Richmond, Va.; W. L. Funkhouser, Atlanta, Ga.

9. "A Clinical Investigation of Incidence of Rheumatic Heart Disease in a Subtropical Climate" (Lantern Slides), Geo. L. Cook and E. W. Bitzer, Tampa, Fla.

   Discussion opened by C. C. McLean, Birmingham, Ala.; Robert A. Strong, New Orleans, La.

10. "Thymic Dangers" (Lantern Slides), Roy de la Houssaye, New Orleans, La.

    Discussion opened by Carroll M. Pounders, Oklahoma City, Okla.; Alton Ochsner, New Orleans, Louisiana.

11. "Calcium and Glucose Therapy in the Treatment of Burns" (Lantern Slides), Allan Penny Bloxsom, H. O. Nicholas (Ph.D.), and Herbert F. Poyner, Houston, Tex.

    Discussion opened by W. McKim Marriott, St. Louis, Mo.; C. M. Burpee, Augusta, Ga.

Election of Officers.

SECTION ON GASTROENTEROLOGY

Second Presbyterian Church, Sunday School Auditorium

Officers

Chairman—Daniel N. Silverman, New Orleans, La.
Vice-Chairman—James Alto Ward, Birmingham, Ala.
Secretary—Ernest H. Gaither, Baltimore, Md.
Hosts from the Richmond Academy of Medicine—T. Dewey Davis, T. N. Barnett and E. H. Terrell, Richmond.

Thursday, November 16, 2:00 p. m.

Second Presbyterian Church, Sunday School Auditorium

1. Chairman's Address: "The Clinical Value of an Experimental Study on the Gallbladder" (Lantern Slides), Daniel N. Silverman, New Orleans, La.

2. "Visualization of the Liver and Spleen as a Diagnostic Aid in Abdominal Conditions" (Lantern Slides), Joseph E. Hirsh and B. F. Morton, Birmingham, Ala.

   Discussion opened by James S. McLester, Birmingham, Ala.; W. M. Yater, Washington, D. C.

3. "Abscess of the Liver Complicated by Duodenal Fistula" (Lantern Slides), George H. Bunch and O. B. Mayer, Columbia, S. C.

   Discussion opened by Stuart McGuire, Richmond, Va.; Robert Wilson, Charleston, S. C.

4. "Gastro-intestinal Allergy: II. Concerning the Mimicry of the Peptic Ulcer Syndrome by the Symptoms of Food Allergy" (Lantern Slides), Herbert J. Rinkel, Kansas City, Mo.

   Discussion opened by Lee P. Gay, St. Louis, Mo.; Warren T. Vaughan, Richmond, Va.

5. "Clinical Observations on the Redundant Colon," Julius Friedenwald and Maurice Feldman, Baltimore, Md.

   Discussion opened by Douglas VanderHoof, Richmond, Va.; Sidney K. Simon, New Orleans, La.

6. "Curling's Ulcer: Experimental Proof of Its Mechanism," Robert Kapsinow, Lafayette, La.

   Discussion opened by Louis Levy, New Orleans, La.; W. E. Alton Ochsner, New Orleans, La.

Election of Officers.

Friday, November 17, 9:00 a. m.

Joint Session with the Section on Medicine

Centenary Methodist Church, Sunday School Auditorium

7. "Bacillary Dysentery in Relation to Ulcerative Colitis" (Lantern Slides), Thomas T. Mackie, New York, N. Y. (From the American Society of Tropical Medicine.)

   Discussion opened by Moses Paulson, Baltimore, Md.; Daniel N. Silverman, New Orleans, La.

8. "Symptoms and Signs Referred to the Appendix and Intestine: the Result of Disorders Elsewhere," James E. Paullin, Atlanta, Ga. (From the Section on Gastroenterology.)

   Discussion opened by Paul H. Ringer, Asheville, N. C.; Wm. R. Houston, Augusta, Ga.

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   Discussion opened by Chas. H. Cocke, Asheville, North Carolina.

10. "Abdominal Symptoms of Heart Disease," John T. King, Baltimore, Md. (From the Section on Medicine.)

    Discussion opened by John Walker Moore, Louisville, Ky.

11. "Some Notes on Referred Digestive Symptoms," Thomas R. Brown, Baltimore, Md. (From the Section on Gastroenterology.)

    Discussion opened by Hugh J. Morgan, Nashville, Tennessee.

12. "Anginoid Symptoms of Gallbladder Disease," Walter E. Vest, Huntington, West Va. (From the Section on Medicine.)

    Discussion opened by Seale Harris, Birmingham, Alabama.

13. "Emotional and Nervous Factors in Symptoms of Abdominal Disease," W. W. Young, Atlanta, Ga. (From the Section on Medicine.)

    Discussion opened by Lawrence Woolley, Towson, Maryland.

SECTION ON PATHOLOGY

Hotel John Marshall, Private Dining Room, Mezzanine Floor

Officers

Chairman—J. A. McIntosh, Memphis, Tenn.
Vice-Chairman—Harvey S. Thatcher, Little Rock, Ark.
Secretary—Wiley D. Forbus, Durham, N. C.
Hosts from the Richmond Academy of Medicine—S. W. Budd, F. L. Apperly and W. A. Shepherd, Richmond.

Thursday, November 16, 9:00 a. m.

Hotel John Marshall,
Private Dining Room, Mezzanine Floor

1. Chairman's Address: "Social Pathology," J. A. McIntosh, Memphis, Tenn.
2. "Glomerular Changes in Nephritis" (Lantern Slides), W. G. MacCallum, Baltimore, Md.
3. "Experimental Production of Gastric Ulcers in Albino Rat as a Result of Vitamin G Deficiency; also as a Result of the Specific Influence of Vitamin B Deficiency: Preliminary Report" (Lantern Slides), Barnett Sure and Harvey S. Thatcher, Little Rock, Ark.
4. "The Biologic Action of Radiant Energy: Ultraviolet," E. R. Whitmore, Washington, D. C.
5. "Immunization Against Scarlet Fever with Hemolytic Streptococci Bacteriophage" (Lantern Slides), J. D. Allen, Louisville, Ky.
6. "Experimental Pneumococcal Nephrosis" (Lantern Slides), Sam S. Blackman, Baltimore, Md.
7. "Intrathoracic Changes in Tularemia," Alfred Blumberg, Oteen, N. C.
8. "The Pathology of Sickle Cell Anemia" (Lantern Slides), L. W. Diggs, Memphis, Tenn.
9. "The Development of Cutaneous Melanoma," Charles Phillips, Temple, Tex.

Friday, November 17, 9:00 a. m.

Hotel John Marshall,
Private Dining Room, Mezzanine Floor

Symposium on the Reticulo-Endothelial System in Relation to Leukemic and Neoplastic States.

10(a). "The Reticulo-Endothelial System: A General Reconsideration," Roger D. Baker, Durham, North Carolina.

10(b). "The Reticulo-Endothelial System and Its Relation to Neoplastic States" (Lantern Slides), Geo. T. Caldwell, Dallas, Tex.

10(c). "The Reticulo-Endothelial System and Its Relation to Leukemia," Oscar C. E. Hansen-Pruss, Durham, N. C.

11. "Pulmonary Arteriosclerosis" (Lantern Slides), J. H. Scherer, University, Va.
12. "Benign Tumors of the Small Intestine" (Lantern Slides), Robert M. Moore and Harry C. Schmeisser, Memphis, Tenn.
13. "Primary Lymphosarcoma of the Small Intestine with Metastases to the Gallbladder, Liver and Both Suprarenal Glands" (Lantern Slides), F. C. Hodges and Walter E. Vest, Huntington, West Va.
14. "A Review of Granulocytopenia with Particular Reference to Etiology" (Lantern Slides), R. R. Kracke and Francis P. Parker, Emory University, Georgia.

Election of Officers.

SECTION ON NEUROLOGY AND PSYCHIATRY

Hotel John Marshall,
Private Dining Room, Mezzanine Floor

Officers

Chairman—R. G. Spurling, Louisville, Ky.
Vice-Chairman—W. W. Young, Atlanta, Ga.
Secretary—J. H. Royster, Richmond, Va.

Hosts from the Richmond Academy of Medicine—W. F. Drewry, O. B. Darden and Howard R. Masters, Richmond.

Thursday, November 16, 2:00 p. m.

Hotel John Marshall,
Private Dining Room, Mezzanine Floor

1. Chairman's Address: "Notes upon the Functional Activity of the Prefrontal Lobes" (Lantern Slides), R. G. Spurling, Louisville, Ky.
2. "The Role of the Neurologist in Cases of Injury to the Central Nervous System," Ralph Greene, Jacksonville, Fla.

   Discussion opened by J. G. Lyerly, Richmond, Va.
3. "The Recent Outbreak of Encephalitis in St. Louis," Hugh S. Cumming, Surgeon General, U. S. Public Health Service, Washington, D. C.

   Discussion opened by Ralph S. Muckenfuss, St. Louis, Mo.
4. "Treatment of Chronic Alcoholism," Oskar Diethelm, Johns Hopkins Hospital, Baltimore, Md.

   Discussion opened by J. K. Hall, Richmond, Va.
5. "Management of Intracranial Birth Injuries," William O. Ott, Fort Worth, Tex.

   Discussion opened by C. C. Coleman, Richmond, Va.; R. Finley Gayle, Jr., Richmond, Va.
6. "Narcolepsy: Its Similarity to Hysteria" (Moving Pictures), D. C. Wilson, Associate Professor of Neurology and Psychiatry, University of Virginia, University, Va.

   Discussion opened by Frank Redwood, Norfolk, Va.; Howard R. Masters, Richmond, Va.

Friday, November 17, 2:00 p. m.

Hotel John Marshall,
Private Dining Room, Mezzanine Floor

7. "Experiments on Section of the Rubro-spinal Tracts in the Monkey," A. D. Keller and W. K. Hare, Department of Physiology and Pharmacology, University of Alabama School of Medicine, University, Ala.

   Discussion opened by A. T. Mussen, Johns Hopkins Hospital, Baltimore, Md.; E. H. Ingersoll (Ph.D.), Department of Anatomy, Medical College of Virginia, Richmond, Va.
8. "Psychopathic Personality: Medico-Legal Aspects," Charles A. McKendree, Assistant Professor of Clinical Neurology, Columbia University College of Physicians and Surgeons, and Attending Neurologist, Neurological Institute of New York, New York, N. Y.

9. "Autistic Thinking," W. R. Houston, Augusta, Ga.

   Discussion opened by W. W. Young, Atlanta, Ga.; Hugh J. Morgan, Nashville, Tenn.

10. "Malaria Treatment of Paresis: Results in 200 Cases Five to Ten Years Later" (Lantern Slides), Walter Freeman and Watson W. Eldridge, Washington, D. C.

    Discussion opened by Carrol C. Turner, Memphis, Tenn.; Wm. A. Smith, Atlanta, Ga.

11. "Intraventricular Lesions," Edgar F. Fincher, Jr., Atlanta, Ga.

    Discussion opened by John Jos. Shugrue, Washington, D. C.; James Asa Shield, Richmond, Va.

Election of Officers.

SECTION ON RADIOLOGY

Hotel John Marshall,
Private Dining Room, Mezzanine Floor

Officers

Chairman—C. H. Heacock, Memphis, Tenn.
Vice-Chairman—K. F. Kesmodel, Birmingham, Ala.
Secretary—Vincent W. Archer, University, Va.

Hosts from the Richmond Academy of Medicine—D. D. Talley, Jr., E. L. Flanagan and L. O. Snead, Richmond.

Thursday, November 16, 9:00 a. m.

Hotel John Marshall,
Private Dining Room, Mezzanine Floor

1. "Osteogenic Sarcoma," R. T. Wilson and Chas. Phillips, Temple, Tex.

   Discussion opened by Ernest C. Samuel, New Orleans, La.

2. "Osteomyelitis" (Lantern Slides), W. H. Goodwin, University, Va.

   Discussion opened by Oscar L. Miller, Charlotte, North Carolina.

3. "After Effects of Irritant Gases: Residual Pulmonary Lesions" (Lantern Slides), Amos R. Koontz, Baltimore, Md.

   Discussion opened by J. W. Pierson, Baltimore, Md.

4. "The Value of Radiology to the Thoracic Surgeon," Alton Ochsner, New Orleans, La.

   Discussion opened by E. C. Drash, University, Va.

5. "Roentgenologic Features of Ulcerating Lesions of the Stomach and Their Differential Diagnosis" (Lantern Slides), B. R. Kirklin, Rochester, Minn.

6. "Extra-Bulbar, or Duodenal Ulcer" (Lantern Slides), W. W. Robinson, Memphis, Tenn.

   Discussion opened by A. B. Moore, Washington, District of Columbia.

Thursday, November 16, 12:30 Noon

Section luncheon, Hotel John Marshall, followed by round table discussion.

Friday, November 17, 9:00 a. m.

Hotel John Marshall,
Private Dining Room, Mezzanine Floor

7. Chairman's Address: "Roentgenologic Findings in Metastatic Staphylococcal Infections of the Kidney and Perinephrium," C. H. Heacock, Memphis, Tenn.

8. Section Clinic, conducted by B. R. Kirklin, Rochester, Minn.

   (a) "Pancreatic Calculi: Proven Case." Case furnished and reported by R. A. Davis, Newport News, Va.

   (b) "Ewing's Tumor of Rib, with Chest Metastases and Results One Year After Treatment." Case furnished and reported by Vincent W. Archer, University, Va.

   (c) "Case Demonstrating the Recuperative Power of the Kidney." Case furnished by Fred M. Hodges and L. O. Snead and reported by L. O. Snead, Richmond, Va.

9. "The Roentgen Ray Studies of Mediastinal Tumors," C. H. Peterson, Roanoke, Va.

   Discussion opened by E. M. McPeak, Washington, District of Columbia.

10. "Treatment of Leukemia" (Lantern Slides), D. Y. Keith, Louisville, Ky.

    Discussion opened by J. T. McKinney, Roanoke, Virginia.

11. "Radiation Treatment of Superficial Epitheliomas," Robert B. Taft, Charleston, S. C.

    Discussion opened by Wright Clarkson, Petersburg, Virginia.

Election of Officers.

SECTION ON DERMATOLOGY AND SYPHILOLOGY

Hotel John Marshall,
Private Dining Room, Mezzanine Floor

Chairman—Andrew L. Glaze, Birmingham, Ala.
Vice-Chairman—Jack W. Jones, Atlanta, Ga.
Secretary—Dud'ey C. Smith, University, Va.

Hosts from the Richmond Academy of Medicine—Thos. W. Murrell, R. W. Fowlkes and E. P. McGavock, Richmond.

Wednesday, November 15, 11:00 a. m.

Clinic at the Richmond Academy of Medicine Building, Richmond, followed by luncheon at 1:00 p. m., with discussions of clinic cases beginning at 2:00 p. m.

Thursday, November 16, 2:00 p. m.

Hotel John Marshall,
Private Dining Room, Mezzanine Floor

1. Chairman's Address: "Some Observations on the Eczematous Reaction Evoked by Skin Eruptions," Andrew L. Glaze, Birmingham, Ala.

2. "Treatment of Lupus Erythematosus with Gold Sodium Thiosulphate," C. M. Hamilton, Nashville, Tenn.

   Discussion opened by S. L. Whitehead, Asheville, N. C.; J. N. Roussel, New Orleans, La.

3. "The Treatment of Nevus Vascularis" (Lantern Slides), William E. Eastland, Oklahoma City, Oklahoma.

   Discussion opened by J. C. Michael, Houston, Tex.; E. R. Tyler, Durham, N. C.

4. "Von Recklinghausen's Disease, Often a Difficult Surgical Problem" (Lantern Slides), Howard T. Phillips, Wheeling, West Va.

   Discussion opened by C. Augustus Simpson, Washington, D. C.; Cosby Swanson, Atlanta, Ga.

5. Section Clinic, conducted by V. Pardo Castello, Havana, Cuba.

   (a) "Lupus Erythematosus with X-ray Dermatitis." Case furnished and reported by Thomas W. Murrell, Richmond, Va.

   (b) "Dermatitis Herpetiformis in a Child." Case furnished and reported by E. P. McGavock, Richmond, Va.

   (c) "Linear and Circumscribed Scleroderma." Case furnished and reported by Richard W. Fowlkes, Richmond, Va.

6. "Radium Treatment of Epithelioma of the Eyelid" (Lantern Slides), Howard Hailey, Atlanta, Ga.

   Discussion opened by L. W. Ketron, Baltimore, Md.; C. O. King, Birmingham, Ala.

Thursday, November 16, 7:30 p. m.

Annual Banquet, Commonwealth Club.

Friday, November 17, 2:00 p. m.

Hotel John Marshall,
Private Dining Room, Mezzanine Floor

7. "The Leucocytes in Skin Diseases," H. H. Hazen, Washington, D. C.

   Discussion opened by E. D. Crutchfield, San Antonio, Tex.; W. U. Rutledge, Louisville, Ky.

8. "Diseases of the Nails: A Study of 519 Cases" (Lantern Slides), V. Pardo Castello, Havana, Cuba.

9. "Vincent's Infection: Complications and Therapy," M. T. Van Studdiford, New Orleans, La.

   Discussion opened by C. A. Andrews, Tampa, Fla.; T. V. Williamson, Norfolk, Va.

10. "A Satisfactory Treatment of Some Forms of Resistant Tinea Infection," H. R. Cogburn, Mobile, Alabama.

    Discussion opened by J. F. Wilson, Jacksonville, Fla.; A. H. Lancaster, Knoxville, Tenn.

11. "The Importance of Patch Tests in the Determination of Arsphenamine Sensitization" (Lantern Slides), Harry M. Robinson, Baltimore, Md.

    Discussion opened by J. R. Allison, Columbia, S. C.; P. F. Stookey, Kansas City, Mo.

12. "A Serological Survey for Syphilis in a Negro Population" (Lantern Slides), Kenneth F. Maxcy and Wm. A. Brumfield, Jr., Charlottesville, Va.

    Discussion opened by Hugh J. Morgan, Nashville, Tenn.; J. E. Moore, Baltimore, Md.

Election of Officers.

ATLANTIC DERMATOLOGICAL CONFERENCE

Dermatological Societies of Washington, Baltimore, Philadelphia, New York, New England and Canada.

Washington, D. C.

Headquarters: The Mayflower Hotel*

Dr. Lee McCarthy, General Chairman

Saturday, November 18

1:00 p. m.—Luncheon at Georgetown University School of Medicine.

2:00 p. m.—Dermatological Clinic, Georgetown University School of Medicine.

8:00 p. m.—Dinner at Mayflower Hotel. Reservations for the dinner, accompanied by a check for $5.00, should be made to Dr. Joseph V. Kennedy, 1835 Eye Street, N. W., Washington, D. C.

Dermatologists attending the Southern Medical Association meeting at Richmond are cordially invited to attend and participate in the activities of the Atlantic Dermatological Conference at Washington.

SECTION ON SURGERY

Hotel John Marshall, Roof Garden

Officers

Chairman—Edwin P. Lehman, University, Va.
Vice-Chairman—Samuel L. Ledbetter, Jr., Birmingham, Alabama.
Secretary—Daniel C. Elkin, Atlanta, Ga.
Hosts from the Richmond Academy of Medicine—W. L. Peple, F. S. Johns and E. T. Trice, Richmond.

Thursday, November 16, 2:00 p. m.

Hotel John Marshall, Roof Garden

1. "Paralysis of the Diaphragm as a Therapeutic Agent" (Lantern Slides), Russell B. Bailey, Wheeling, West Va.

   Discussion opened by I. A. Bigger, Richmond, Va.; Hugh H. Trout, Roanoke, Va.

2. "Pneumococcic Peritonitis," John H. Lyons, Washington, D. C.

   Discussion opened by Stuart McGuire, Richmond, Va.; J. T. Buxton, Newport News, Va.

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*The Mayflower Hotel is also headquarters for the Southern Medical Association's post-meeting day in Washington, Saturday, November 18.

3. "Hypoglycemia Due to Adenoma of the Islands of Langerhans" (Lantern Slides), Nathan A. Womack, St. Louis, Mo.

   Discussion opened by J. M. T. Finney, Baltimore, Md.; Seale Harris, Birmingham, Ala.

4. "Multiple Polyps of the Colon" (Lantern Slides), Fred W. Rankin, Lexington, Ky.

   Discussion opened by A. Stephens Graham, Richmond, Va.; R. L. Payne, Norfolk, Va.

5. "Water Metabolism in the Surgical Patient" (Lantern Slides), Frederick A. Coller, Professor of Surgery, University of Michigan Medical School, Ann Arbor, Mich.

6. "Traumatic Shock and Hemorrhage" (Lantern Slides), Alfred Blalock, Nashville, Tenn.

   Discussion opened by J. Shelton Horsley, Richmond, Va.; William F. Rienhoff, Jr., Baltimore, Md.

Friday, November 17, 2:00 p. m.

Hotel John Marshall, Roof Garden

7. Chairman's Address: "The Rationale of Surgery of the Sympathetic System" (Lantern Slides), Edwin P. Lehman, University, Va.

8. "The Treatment of Hemangiomata by Excision" (Lantern Slides), John Staige Davis, Baltimore, Maryland.

   Discussion opened by John S. Horsley, Jr., Richmond, Va.; J. Barrett Brown, St. Louis, Mo.

9. "Pilonidal Cyst," I. M. Gage, New Orleans, La.

   Discussion opened by Harvey B. Stone, Baltimore, Md.; W. H. Goodwin, University, Va.

10. "Gunshot Wounds of the Abdomen" (Lantern Slides), Frank C. Wilson, Birmingham, Ala.

    Discussion opened by M. H. Todd, Norfolk, Va.; Carrington Williams, Richmond, Va.

11. "Multiple Traumatic Arteriovenous Aneurism: Report of a Case," W. H. Parsons and W. G. Weston, Vicksburg, Miss.

    Discussion opened by Rudolph Matas, New Orleans, La.; Paul LaRoque, Richmond, Va.

Election of Officers.

SECTION ON BONE AND JOINT SURGERY

Second Presbyterian Church, Sunday School Auditorium

Officers

Chairman—J. Albert Key, St. Louis, Mo.
Vice-Chairman—H. Earle Conwell, Fairfield, Ala.
Secretary—J. Warren White, Greenville, S. C.
Hosts from the Richmond Academy of Medicine—D. M. Faulkner, J. B. Fitts and H. Page Mauck, Richmond.

Thursday, November 16, 9:00 a. m.

Second Presbyterian Church, Sunday School Auditorium

1. "Massive Cystic Adamantinoma with Jaw Resection: Case Reports" (Lantern Slides), Austin T. Moore, Columbia, S. C.

   Discussion opened by J. A. Key, St. Louis, Mo.; A. R. Shands, Durham, N. C.; I. W. Nachlas, Baltimore, Md.

2. "Myositis Ossificans," Earl R. Campbell and J. Marsh Frere, Chattanooga, Tenn.

   Discussion opened by J. S. Speed, Memphis, Tenn.; O. L. Miller, Charlotte, N. C.; R. A. Moore, Winston-Salem, N. C.

3. "Fractures of the Os Calcis" (Lantern Slides), J. Edgar Stewart, St. Louis, Mo.

   Discussion opened by H. Earle Conwell, Fairfield, Ala.; C. C. Garr, Lexington, Ky.; Allen F. Voshell, Baltimore, Md.

4. "Recent Observations in European Orthopedic Clinics" (Lantern Slides), Clay Ray Murray, Assistant Professor of Surgery, Columbia University College of Physicians and Surgeons, New York, New York.

5. Section Clinic, conducted by Robert W. Johnson, Jr., Baltimore, Md.

   (a) "Compressed Fracture of Spine." Case furnished and reported by James T. Tucker, Richmond, Va.

   (b) "Fracture of Neck of Femur." Case furnished and reported by H. Page Mauck, Richmond, Virginia.

   (c) "Osteomyelitis of Tibia." Case furnished and reported by J. Blair Fitts, Richmond, Va.

Friday, November 17, 9:00 a. m.

Second Presbyterian Church, Sunday School Auditorium

6. "The Management of Fractures of Both Bones of the Leg" (Lantern Slides), Randolph L. Anderson, Charleston, West Va.

   Discussion opened by W. B. Carrell, Dallas, Tex.; W. A. Boyd, Columbia, S. C.; J. S. Gaul, Charlotte, N. C.

7. "Advantages of Lateral View X-rays in the Treatment of Fractures About the Hip," Robert Funston, University, Va.

   Discussion opened by G. W. Leadbetter, Washington, D. C.; F. D. Dickson, Kansas City, Mo.; M. Gellman, Baltimore, Md.

8. "End-Results in Coxa Plana" (Lantern Slides), Guy A. Caldwell, Shreveport, La.

   Discussion opened by G. E. Bennett, Baltimore, Md.; E. D. McBride, Oklahoma City, Okla.; E. L. Scott, Birmingham, Ala.

9. Chairman's Address: "Personal Futile Attempts to Prove the Infectious Origin of Chronic Arthritis," J. Albert Key, St. Louis, Mo.

10. "Arthrokatadysis of the Hip" (Lantern Slides), Moses Gellman, Baltimore, Md.

    Discussion opened by Lawson Thornton, Atlanta, Ga.; W. Barnett Owen, Louisville, Ky.; C. L. Hall, Washington, D. C.

11. "Deformities of the Lower Limb," I. William Nachlas, Baltimore, Md.

Discussion opened by R. W. Billington, Nashville, Tenn.; J. B. Fitts, Richmond, Va.; E. S. Hatch, New Orleans, La.

Election of Officers.

SECTION ON GYNECOLOGY

Centenary Methodist Church, Sunday School Auditorium

Officers

Chairman—Percy H. Wood, Memphis, Tenn.
Vice-Chairman—John W. Turner, Atlanta, Ga.
Secretary—Lee F. Turlington, Birmingham, Ala.
Hosts from the Richmond Academy of Medicine—Chas. R. Robins, A. C. Sinton and Stuart N. Michaux, Richmond.

Wednesday, November 15, 9:30 a. m.

Centenary Methodist Church, Sunday School Auditorium

1. "Krukenberg Tumor of the Ovary: Report of Three Cases" (Lantern Slides), C. J. Andrews, Norfolk, Virginia.

Discussion opened by Emil Novak, Baltimore, Md.; M. Wilson Searight, Memphis, Tenn.

2. Chairman's Address: "Intestinal Obstruction Following Gynecologic Operations" (Lantern Slides), Percy H. Wood, Memphis, Tenn.

3. "Clinical and Pathological Aspects of Functional Uterine Bleeding," Floyd E. Keene, William Goodell Professor of Gynecology, University of Pennsylvania School of Medicine, and Professor of Gynecology, Graduate School of Medicine, University of Pennsylvania School of Medicine, Philadelphia, Pa.

4. "The Preoperative and Postoperative Treatment of Abdominal Section and Plastic Operations," L. E. Burch, Nashville, Tenn.

Discussion opened by Charles Mazer, Philadelphia, Pa.; Wm. T. Black, Memphis, Tenn.

5. "The Modified Goebell-Stoeckel Operation for Urinary Incontinence" (Lantern Slides), Richard W. TeLinde, Baltimore, Md.

Discussion opened by Guy L. Hunner, Baltimore, Md.; Chas. R. Robins, Richmond, Va.

Election of Officers.

Thursday, November 16, 9:00 a. m.

Joint Session with the Section on Obstetrics

Hotel John Marshall, Roof Garden

1. Section Clinic, Obstetrical Cases, conducted by H. J. Stander, Professor of Obstetrics and Gynecology and Head of Department, Cornell University Medical College, New York, N. Y.

(a) "Classical Cesarian Section for Fulminating Eclampsia with Coma: Subarachnoid Hemorrhage: Pyelitis following Catheterization: Recovery." Case furnished and reported by Greer Baughman, Richmond, Va.

(b) "Extrauterine Pregnancy at Term." Case furnished and reported by H. H. Ware, Jr., Richmond, Va.

(c) "Repeated Neonatal Deaths from Impetigo Neonatorum." Case furnished and reported by M. Pierce Rucker, Richmond, Va.

2. "The Advisability of Repair of Old Lacerations of the Cervix and Perineum at the Time of Subsequent Delivery," James R. Bloss, Huntington, West Va.

Discussion opened by W. Bush Anderson, Nashville, Tenn.; Bayard Carter, Durham, N. C.

3. Section Clinic, Gynecological Cases, conducted by Floyd E. Keene, William Goodell Professor of Gynecology, University of Pennsylvania School of Medicine, and Professor of Gynecology, Graduate School of Medicine, University of Pennsylvania School of Medicine, Philadelphia, Pa.

(a) "Myoma of Fundus Uteri." Case furnished and reported by R. Angus Nichols, Jr., Richmond, Va.

(b) "Functional Uterine Bleeding." Case furnished and reported by William D. Suggs, Richmond, Virginia.

(c) "Amenorrhea in Young Woman." Case furnished and reported by Arthur C. Sinton, Jr., Richmond, Va.

4. "Interpretation of the Friedman Pregnancy Test," M. Y. Dabney and Eugenia B. Dabney, Birmingham, Ala.

Discussion opened by B. T. Beasley, Atlanta, Ga.; H. H. Ware, Jr., Richmond, Va.

SECTION ON OBSTETRICS

Hotel John Marshall, Roof Garden

Officers

Chairman—E. L. King, New Orleans, La.
*Vice-Chairman—Percy W. Toombs, Memphis, Tenn.
Secretary—Richard Paddock, St. Louis, Mo.
Hosts from the Richmond Academy of Medicine—Greer Baughman, H. A. Bullock and M. Pierce Rucker, Richmond.

Thursday, November 16, 9:00 a. m.

Joint Session with the Section on Gynecology

Hotel John Marshall, Roof Garden

1. Section Clinic, Obstetrical Cases, conducted by H. J. Stander, Professor of Obstetrics and Gynecology and Head of Department, Cornell University Medical College, New York, N. Y.

(a) Classical Cesarian Section for Fulminating Eclampsia with Coma: Subarachnoid Hemor-

*Deceased.

rhage: Pyelitis following Catheterization: Recovery." Case furnished and reported by Greer Baughman, Richmond, Va.

(b) "Extrauterine Pregnancy at Term." Case furnished and reported by H. H. Ware, Jr., Richmond, Va.

(c) "Repeated Neonatal Deaths from Impetigo Neonatorium." Case furnished and reported by M. Pierce Rucker, Richmond, Va.

2. "The Advisability of Repair of Old Lacerations of the Cervix and Perineum at the Time of Subsequent Delivery," James R. Bloss, Huntington, West Va.

Discussion opened by W. Bush Anderson, Nashville, Tenn.; Bayard Carter, Durham, N. C.

3. Section Clinic, Gynecological Cases, conducted by Floyd E. Keene, William Goodell Professor of Gynecology, University of Pennsylvania School of Medicine, and Professor of Gynecology, Graduate School of Medicine, University of Pennsylvania School of Medicine, Philadelphia, Pa.

(a) "Myoma of Fundus Uteri." Case furnished and reported by R. Angus Nichols, Jr., Richmond, Va.

(b) "Functional Uterine Bleeding." Case furnished and reported by William D. Suggs, Richmond, Va.

(c) "Amenorrhea in Young Woman." Case furnished and reported by Arthur C. Sinton, Jr., Richmond, Va.

4. "Interpretation of the Friedman Pregnancy Test," M. Y. Dabney and Eugenia B. Dabney, Birmingham, Ala.

Discussion opened by B. T. Beasley, Atlanta, Ga.; H. H. Ware, Jr., Richmond, Va.

Friday, November 17, 9:00 a. m.

Hotel John Marshall, Roof Garden

1. Chairman's Address: "Medical Indications for Sterilization and for Contraceptive Measures," E. L. King, New Orleans, La.

2. "Nephritis and Pregnancy" (Lantern Slides), H. J. Stander, Professor of Obstetrics and Gynecology and Head of Department, Cornell University Medical College, New York, N. Y.

3. "Uterine Relaxation," James R. Garber, Birmingham, Ala.

Discussion opened by W. T. Pride, Memphis, Tenn.; Thos. B. Sellers, New Orleans, La.

4. "The Management of Occiput Posterior Positions, with Special Reference to the Scanzoni Maneuver," Jos. Reddoch, New Orleans, La.

Discussion opened by James R. Garber, Birmingham, Ala.; M. Pierce Rucker, Richmond, Va.

5. "Induction of Labor by Preliminary Sensitization of the Uterus and Rupture of the Membranes: Report of Cases" (Lantern Slides), Prentiss Willson, Washington, D. C.

Discussion opened by John McF. Bergland, Baltimore, Md.; Charles H. Peckham, Baltimore, Md.

6. "The Use of Sodium Amytal in the Treatment of Eclampsia" (Lantern Slides), Milton Smith Lewis, Nashville, Tenn.

Discussion opened by Wm. T. McConnell, Louisville, Ky.; J. R. Reinberger, Memphis, Tenn.

Election of Officers.

SECTION ON UROLOGY

Hotel Richmond, Ballroom

Officers

Chairman—Nelse F. Ockerblad, Kansas City, Mo.
Vice-Chairman—I. G. Duncan, Memphis, Tenn.
Secretary—Hamilton W. McKay, Charlotte, N. C.
Hosts from the Richmond Academy of Medicine—A. I. Dodson, M. P. Gordon and L. T. Price, Richmond.

Thursday, November 16, 9:00 a. m.

Hotel Richmond, Ballroom

1. Section Clinic, "Injection Method in Chronic Prostatitis," conducted by Owsley Grant, Louisville, Kentucky.

2. Chairman's Address: "Experimental Studies with Viable Muscle Grafts in Kidney Surgery," Nelse F. Ockerblad, Kansas City, Mo.

SYMPOSIUM ON UROLOGICAL ACCIDENTS

3. "Rupture of the Kidney: Report of 25 Cases," John G. Pratt, New Orleans, La.

4. "Rupture of the Bladder," Edgar G. Ballenger, Omar F. Elder and H. P. McDonald, Atlanta, Ga.

5. "Traumatism of the Ureter: Report of Cases," Geo. R. Livermore, Memphis, Tenn.

6. "Rupture of the Urethra: Report of Cases," Wm. M. Coppridge, Durham, N. C.

7. "Rupture of the Kidney Pelvis: Report of Three Cases and Review of the Literature" (Lantern Slides), Benj. S. Abeshouse, Baltimore, Md.

Discussion on Symposium opened by (3) Frederick A. Reuter, Washington, D. C.; (4) Thos. R. Huffines, Asheville, N. C.; (5) Kevin D. Lynch, El Paso, Tex.; (6) J. Logan Morgan, Memphis, Tenn.; (7) Richard D. Gill, Wheeling, West Va.; with summary by W. J. Wallace, Oklahoma City, Okla.

8. "A Consideration of the Ureter in Serial Pyelograms" (Lantern Slides), Thos. D. Moore, Memphis, Tenn.

Discussion opened by Albert Goldstein, Baltimore, Maryland.

9. "Continuous Irrigation of the Bladder in Certain Cases of Cystitis" (Lantern Slides), John H. Neff, University, Va.

Discussion opened by Earl H. Floyd, Atlanta, Ga.

10. "Ureterocele" (Lantern Slides), Guy L. Hunner, Baltimore, Md.

Discussion opened by Joseph F. Geisinger, Richmond, Va.

Friday, November 17, 9:00 a. m.

Hotel Richmond, Ballroom

11. Section Clinic, "Prostatic Resection," conducted by A. I. Folsom, Dallas, Tex.

12. "The Management of Non-gonorrheal Prostatitis," P. Starr Pelouze, Philadelphia, Pa.

13. "The Stone Age of Surgery" (Lantern Slides), Logan Clendening, Kansas City, Mo.

14. "Extensive Bilateral Renal Calculosis of Rapid Development Following Fracture of the Vertebrae: Discussion of Possible Etiologic Factors," Roy J. Holmes and Milton M. Coplan, Miami, Fla.

    Discussion opened by Linwood D. Keyser, Roanoke, Virginia.

15. "The Treatment of Prostatic Cancer" (Lantern Slides), W. Calhoun Stirling, Washington, D. C.

    Discussion opened by Raymond Thompson, Charlotte, N. C.

16. "An X-ray Study of the Prostatic Urethra with Special Reference to Prostatic Resection" (Lantern Slides), W. W. S. Butler, Jr., and C. H. Peterson, Roanoke, Va.

    Discussion opened by Wm. H. Toulson, Baltimore, Maryland.

17. "A Simp'e Method of Treatment for Relief of Prostatic Obstruction: Case Reports," J. B. Neil, Knoxville, Tenn.

    Discussion opened by A. I. Dodson, Richmond, Va.

    Election of Officers.

SECTION ON RAILWAY SURGERY

Southern States Association of Railway Surgeons

Second Presbyterian Church, Sunday School Auditorium

Officers

Chairman—E. Dunbar Newell, Chattanooga, Tenn.
Vice-Chairman—S. O. Black, Spartanburg, S. C.
Secretary—J. W. Palmer, Ailey, Ga.

Hosts from the Richmond Academy of Medicine—W. T. Oppenhimer, J. W. Henson and L. H. Apperson, Richmond.

Wednesday, November 15, 9:30 a. m.

Second Presbyterian Church, Sunday School Auditorium

1. Chairman's Address: "The Treatment of Sterile, Contaminated and Infected Wounds," E. Dunbar Newell, Chattanooga, Tenn.

   Discussion opened by Southgate Leigh, Norfolk, Va.; Robt. B. Slocum, Wilmington, N. C.

2. "Old and Irreducible Dislocations of the Shoulder Joint" (Lantern Slides), Wm. R. Cubbins, Associate Professor of Surgery, Northwestern University Medical School, Chicago, Ill.

3. "Standardization of Technic for Repair of Inguinal Hernia" (Lantern Slides), R. L. Payne, Norfolk, Virginia.

   Discussion opened by L. H. Apperson, Richmond, Va.; J. W. Henson, Richmond, Va.

4. "Regeneration of Long Bones Following Complete Subperiosteal Removal in Cases of Extensive Osteomyelitis" (Moving Pictures), G. V. Brindley, Temple, Tex.

   Discussion opened by W. T. Oppenhimer, Richmond, Va.; Joseph D. Collins, Norfolk, Va.

5. "Fractures of the Os Calcis and Astragalus," Wright Clarkson and Allen Barker, Petersburg, Va.

   Discussion opened by W. T. Graham, Richmond, Va.; W. R. Whitman, Roanoke, Va.

   Election of Officers.

SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY

Richmond Academy of Medicine, 12th and Clay Streets

Officers

Chairman—William D. Gill, San Antonio, Tex.
Vice-Chairman—E. W. Rucker, Jr., Birmingham, Ala.
Secretary—William A. Wagner, New Orleans, La.

Hosts from the Richmond Academy of Medicine—Emory Hill, Clifton M. Miller and B. R. Wellford, Richmond.

Wednesday, November 15, 2:00 p. m.

Richmond Academy of Medicine, 12th and Clay Streets

1. Chairman's Address: "Fractures of the Facial Bones with Special Reference to Involvement of the Nasal Accessory Sinuses and Orbit" (Lantern Slides), William D. Gill, San Antonio, Tex.

2. "Certain Phases of Meningitis in Relation to Disease of the Petrous Apex, with Description of an Intrameatal Form of Facial Paralysis Not Previously Recognized," Wells P. Eagleton, Newark, New Jersey.

3. "Our Experience with Dacryorhinostomy" (Lantern Slides), E. C. Ellett and R. O. Rychener, Memphis, Tenn.

   Discussion opened by William E. Howard, Dallas, Tex.; R. H. Courtney, Richmond, Va.

4. "Chronic Naso-pharyngeal Bursitis (Thornwaldt's Disease)" (Lantern Slides), Dunbar Roy, Atlanta, Georgia.

   Discussion opened by E. U. Wallerstein, Richmond, Va.; John T. Crebbin, Shreveport, La.

5. "A New Method for Localization of Intra-ocular Foreign Bodies, with an Outline of Their Management" (Lantern Slides), M. Earle Brown, New Orleans, La.

   Discussion opened by Emory Hill, Richmond, Va.; Wm. Thornwall Davis, Washington, D. C.

6. "Practice in Peroral Endoscopy," T. R. Gaines, Anderson, S. C.

   Discussion opened by V. K. Hart, Charlotte, N. C.; J. S. Norman, Hickory, N. C.

Thursday, November 16, 2:00 p. m.

Richmond Academy of Medicine,
12th and Clay Streets

7. "Nasal Sinus Diseases in Young Children" (Lantern Slides), Lee W. Dean, St. Louis, Mo.

   Discussion opened by H. Marshall Taylor, Jacksonville, Fla.; M. L. Breitstein, Baltimore, Md.

8. "Sympathetic Ophthalmia" (Lantern Slides), Lawrence T. Post, St. Louis, Mo.

   Discussion opened by Norma Israel, Houston, Tex.; Karl S. Blackwell, Richmond, Va.

9. "The Normal and Pathologic Larynx Under Suspension Laryngoscopy" (Moving Pictures), F. E. Lejeune, New Orleans, La.

   Discussion opened by Mitchell Porter Stiles, Birmingham, Ala.; Richmond McKinney, Memphis, Tennessee.

10. "Cancer of Larynx: Laryngectomy" (Moving Pictures), Edward A. Looper, Baltimore, Md.

    Discussion opened by J. Calhoun McDougall, Atlanta, Ga.; E. Meredith Sykes, San Antonio, Tex.

11. "Laryngectomy versus Laryngofissure," Murdock Equen, Atlanta, Ga.

    Discussion opened by Homer Dupuy, New Orleans, La.; John H. Foster, Houston, Tex.

12. "The Surgical Treatment of Glaucoma" (Illustrating the Jervey Operation) (Lantern Slides), John H. Burleson, San Antonio, Tex.

    Discussion opened by J. W. Jervey, Greenville, S. C.; Grady E. Clay, Atlanta, Ga.

Friday, November 17, 2:00 p. m.

Richmond Academy of Medicine,
12th and Clay Streets

13. "Some High Points in 36 Years of Practice in Rhinology and Laryngology," T. W. Moore, Huntington, West Va.

    Discussion opened by Fletcher D. Woodward, Charlottesville, Va.; Clifton M. Miller, Richmond, Va.

14. "The Arrest of Nutritional Cataract in the Albino Rat by the Use of Vitamin G (B_2)" (Lantern Slides), W. C. Langston and Paul L. Day, Little Rock, Ark.

    Discussion opened by K. W. Cosgrove, Little Rock, Ark.; Henry Blum, New Orleans, La.

15. "Swelling of the Orbit with Special Reference to Cavernous Sinus Thrombosis," Cuthbert Tunstall, Charlottesville, Va.

    Discussion opened by M. McT. Cullom, Nashville, Tenn.; B. R. Wellford, Richmond, Va.

16. "Amaurosis Following Topical Application of Ethylhydrocuprin in Acute Septic Sore Throat," E. W. Griffey, Houston, Tex.

    Discussion opened by Robert Sullivan, Nashville, Tenn.; T. J. Dimitry, New Orleans, La.

17. "Upper Respiratory Tuberculous Complications of Pulmonary Tuberculosis" (Lantern Slides), G. H. B. Terry, Oteen, N. C.

    Discussion opened by Richard W. Wilkinson, Washington, D. C.; Alfred Blumberg, Oteen, N. C.

18. "Sinus Thrombosis and Sinus Thrombophlebitis Complicating Mastoiditis: Case Reports" (Lantern Slides), E. G. Gill, Roanoke, Va.

    Discussion opened by Thomas E. Hughes, Richmond, Va.; B. P. Woodson, Temple, Tex.

Election of Officers.

SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY

Richmond Academy of Medicine,
12th and Clay Streets

ROUND TABLE SESSIONS

Chairman Program Committee—William Thornwall Davis, Washington, D. C.

Thursday, November 16, 9:00 a. m.

Richmond Academy of Medicine,
12th and Clay Streets

OTOLARYNGOLOGY

1. "Indications for the Use of the Cautery in Laryngeal Tuberculosis," H. S. Hedges, Charlottesville, Va.
2. "The Sinuses as Foci of Infection," William B. Mason, Washington, D. C.
3. "The Bronchoscopic Diagnosis of Diseases of the Tracheo-Bronchial Tree" (Lantern Slides), Millard F. Arbuckle, St. Louis, Mo.

Friday, November 17, 9:00 a. m.

Richmond Academy of Medicine,
12th and Clay Streets

OPHTHALMOLOGY

4. "Ocular Tumors," E. H. Cary, Dallas, Tex.
5. "Discussion of Convergent Squint and Its Treatment," P. Chalmers Jameson, Brooklyn, N. Y.
6. "Intra-ocular Tuberculosis," W. G. Harrison, Birmingham, Ala.

SECTION ON PUBLIC HEALTH

Second Baptist Church, Business Men's Class Room
(Adams Street Entrance)

Officers

Chairman—Joseph W. Mountin, Washington, D. C.
Vice-Chairman—Leon Banov, Charleston, S. C.
Secretary—Douglas L. Cannon, Montgomery, Ala.
Hosts from the Richmond Academy of Medicine—W. F. Draper and C. L. Outland, Richmond.

Wednesday, November 15, 9:00 a. m.

The State Capitol
Chamber of the House of Delegates

Warren F. Draper, State Health Commissioner, Richmond, presiding.

Program arranged by the Departments of Health of the Commonwealth of Virginia, of Henrico County and of the City of Richmond, by invitation, as a joint activity of the Section on Public Health, Southern Medi-

cal Association, and of the Southern Branch, American Public Health Association.

1. "Demonstration of Scarlet Fever Studies of the Richmond City Department of Health," W. B. Foster, City Health Officer, and J. D. Reid, Richmond, Va.

2. "Diphtheria Immunization Program of the State, City, and County Health Departments," W. B. Foster, City Health Officer, and I. C. Riggin, Director of Rural Health, State Department of Health, Richmond, Va.

3. "The Tuberculosis Program in Henrico County," E. C. Harper, Consultant in Tuberculosis, State Department of Health, Richmond, Va.

4. "The Program of Prenatal Work in Henrico County," E. L. Stebbins, County Health Officer, Richmond, Va.

5. "Demonstration of Teaching the Deaf Child," C. L. Outland, Medical Director, Richmond Public Schools, Richmond, Va.

Thursday, November 16, 9:00 a. m.

Second Baptist Church, Business Men's Class Room (Adams Street Entrance)

1. "A Study of Tuberculosis in Baltimore City from 1812 to 1932, Inclusive," John Collinson, Chief of the Bureau of Vital Statistics, State Department of Health of Maryland, Baltimore, Md.

Discussion opened by Huntington Williams, Baltimore, Md.; R. S. Gass, Franklin, Tenn.

2. "Rocky Mountain Spotted Fever Invades the East" (Lantern Slides), Jas. G. Cumming, Chief, Bureau of Preventable Diseases, Health Department of the District of Columbia, Washington, D. C.

3. "Rocky Mountain Spotted Fever in North Carolina," D. F. Milam, Epidemiologist of the North Carolina State Board of Health, Raleigh, N. C.

Discussion on papers of Dr. Cumming and Dr. Milam opened by S. F. Ravenel, Greensboro, N. C.; William Litterer, Nashville, Tenn.

4. "A Coordinated National Health Program," A. T. McCormack, State Health Officer, Louisville, Ky.

Discussion opened by Felix J. Underwood, Jackson, Miss.; Warren F. Draper, Richmond, Va.

5. "The Intravenous Use of Methylene Blue Solutions in the Treatment of Cyanide and Carbon Monoxide Poisoning," J. C. Geiger, Director of Public Health, and J. P. Gray, Assistant Director of Public Health, San Francisco, Calif.

6. "A Comparative Study of the Value of Tetrachlorethylene in the Treatment and as a Means of Ultimate Control and Eradication of Hookworm Disease in Children," Harvey F. Garrison, Jackson, Miss.

Discussion opened by H. C. Ricks, Jackson, Miss.; W. S. Leathers, Nashville, Tenn.

7. "Trachoma in the Native White Population of the United States," Carl E. Rice, U.S.P.H.S., Rolla, Mo., and Avery A. Drake, State Board of Health, Rolla, Mo.

Discussion opened by E. T. McGaugh, Jefferson City, Mo.; B. H. Minchew, Waycross, Ga.

Friday, November 17, 9:00 a. m.

Second Baptist Church, Business Men's Class Room (Adams Street Entrance)

8. Chairman's Address: "Needs and Opportunities for Administrative Research in County Health Departments,". Joseph W. Mountin, U.S.P.H.S., Washington, D. C.

9. "Health Centers in Rural Public Health Service," T. Paul Haney, Health Officer, Pike County, McComb, Miss.

10. "A Program for District Health Work in Rural Areas," Irl B. Krause, Director, Division of Child Hygiene and Cooperative Rural Health Work, and William F. Lunsford, Vital Statistician, Missouri State Board of Health, Jefferson City, Mo.

Discussion on papers of Dr. Haney and Drs. Krause and Lunsford opened by J. B. Black, Murfreesboro, Tenn.; D. V. Galloway, Meridian, Miss.

11. "How May the County Health Officer Determine an Effective Prenatal Service?," M. H. Jensen, Kentucky State Board of Health, Louisville, Ky.

Discussion opened by C. C. Applewhite, U.S.P.H.S., Columbia, S. C.; J. H. Janney, Annapolis, Md.

12. "Twenty Years of County Health Work in North Carolina," John H. Hamilton, Director, State Laboratory of Hygiene, Raleigh, N. C.

Discussion opened by John A. Ferrell, Rockefeller Foundation, New York, N. Y.; W. K. Sharp, Nashville, Tenn.

13. "Brucelliasis: General Considerations," Gordon Hastings, Assistant State Health Officer, Little Rock, Ark.

14. "Undulant Fever Control in Washington County, Maryland," W. Ross Cameron, Deputy State Health Officer, Hagerstown, Md.

Discussion on papers of Dr. Hastings and Dr. Cameron opened by Jas. G. McAlpine, Montgomery, Ala.; G. Foard McGinnes, Richmond, Va.

15. "Typhus Fever," L. F. Badger, U.S.P.H.S., Washington, D. C.

Discussion opened by K. F. Maxcy, University of Virginia, University, Va.; Lee Howard, Savannah, Ga.

Election of Officers.

NATIONAL MALARIA COMMITTEE

Headquarters: Jefferson Hotel

Meeting Place: Second Baptist Church, Business Men's Class Room (Adams Street Entrance)

Officers

Honorary Chairman—L. O. Howard, Washington, D. C.
Chairman—Charles F. Craig, New Orleans, La.
Chairman-Elect—Henry Hanson, Jacksonville, Fla.
Vice-Chairman—L. L. Williams, Jr., Washington, D. C.
Secretary-Treasurer—Mark F. Boyd, Tallahassee, Fla.
Hosts from the Richmond Academy of Medicine—R. K. Flannagan and (Mr.) A. H. Straus, Richmond.

Wednesday, November 15, 8:00 p. m.

Jefferson Hotel, Room 630

Business Session—Consideration of regular and special business, reports of standing sub-committees, etc.

Thursday, November 16, 2:00 p. m.

Second Baptist Church, Business Men's Class Room (Adams Street Entrance)

1. Chairman's Address: "Some Research Problems in Malaria," Chas. F. Craig, Colonel, Medical Corps, U. S. Army, Retired; Professor of Tropical Medicine, Tulane University School of Medicine, New Orleans, La.
2. "New Light on Old Problems in Malaria," L. W. Hackett, Assistant Director, International Health Division, Rockefeller Foundation, Rome, Italy.
3. "Helping the Minnows," M. A. Fort, Health Commissioner, Decatur County, Bainbridge, Ga.

   Discussion opened by T. H. D. Griffitts, Surgeon, U.S.P.H.S., Jacksonville, Fla.; L. L. Williams, Jr., Surgeon, U.S.P.H.S., Washington, D. C.
4. "Results from Screening of Rural Homes in Lake County, Tennessee" (Lantern Slides), H. E. Meleney, Associate Professor of Preventive Medicine and Public Health, Vanderbilt University School of Medicine, Nashville, Tenn., and James A. Crabtree, Director, Division of Preventable Diseases, Tennessee State Department of Public Health, Nashville, Tenn.

   Discussion opened by (Mr.) H. A. Johnson, Sanitary Engineer, Memphis, Tenn.; George E. Riley, State Department of Public Health, Jackson, Mississippi.
5. "Rural Malaria Surveys in Florida," T. H. D. Griffitts, Surgeon, U.S.P.H.S., Director, Division of Malaria Control Studies, Florida State Board of Health, Jacksonville, Fla.

   Discussion opened by S. S. Cook, Lieutenant Commander, Medical Corps, U. S. Navy, Washington, D. C.; Kenneth M. Maxcy, Professor of Preventive Medicine and Bacteriology, University of Virginia School of Medicine, University, Va.
6. "Long-range Flights of Anopheles," D. P. Curry, Assistant Chief Health Officer, Balboa Heights, Canal Zone.

   Discussion opened by H. C. Clark, Director, Gorgas Memorial Laboratory, Ancon, Canal Zone; W. V. King, U. S. Bureau of Entomology, Orlando, Florida.
7. "Malaria in Virginia, North and South Carolina," Frederick L. Hoffman, Consulting Statistician, The Prudential Insurance Co., Newark, N. J.

Friday, November 17, 2:00 p. m.

Second Baptist Church, Business Men's Class Room (Adams Street Entrance)

Joint Session with the American Society of Tropical Medicine.

8. "Hibernation of *Anopheles quadrimaculatus*, Say, in Southern Louisiana," E. H. Hinman, Department of Tropical Medicine, Louisiana State University Medical Center, New Orleans, La.

   Discussion opened by W. V. King, U. S. Bureau of Entomology, Orlando, Fla.; F. C. Bishopp, U. S. Bureau of Entomology, Washington, D. C.
9. "Splenomegaly in Benign Tertian Malaria," W. K. Stratman-Thomas, International Health Division, Rockefeller Foundation, Station for Malaria Research, Florida State Board of Health, Tallahassee, Florida.

   Discussion opened by M. A. Fort, Health Commissioner, Decatur County, Bainbridge, Ga.
10. "Transmission of Malaria in Drug Addicts by Intravenous Use of Narcotics," James A. Bradley, Assistant Professor of Medicine, Louisiana State University Medical Center, New Orleans, Louisiana.

    Discussion opened by Wm. Krauss, Meridian, Miss.
11. "A Third Year's Observation on Malaria in Panama, with Special Reference to Control with Atabrine" (Lantern Slides), (Mr.) W. H. W. Komp, Sanitary Engineer, U.S.P.H.S., Ancon, Canal Zone, and H. C. Clark, Director, Gorgas Memorial Laboratory, Ancon, Canal Zone.

    Discussion opened by Henry E. Meleney, Department of Preventive Medicine, Vandervilt University School of Medicine, Nashville, Tenn.
12. "What is the Type of Erythrocyte Attacked by the Malaria Parasite?," Paul Eaton, Director, Bureau of Laboratories, Florida State Board of Health, Jacksonville, Fla.

    Discussion opened by T. H. D. Griffitts, Surgeon, U. S. Public Health Service; Director, Division of Malaria Control Studies, Florida State Board of Health, Jacksonville, Fla.
13. "Observations on Winter Infection Rates in *A. maculipennis* and *superpictus* in Bulgaria," Ralph K. Collins, International Health Division, Rockefeller Foundation, New York, N. Y.
14. "Anophelines and Malaria in the Pacific Northwest" (Lantern Slides), (by invitation), (Mr.) H. M. Stage, U. S. Bureau of Entomology, Portland, Oregon. To be read by F. C. Bishopp, U. S. Bureau of Entomology, Washington, D. C.

SOUTHERN BRANCH, AMERICAN PUBLIC HEALTH ASSOCIATION

Headquarters: Jefferson Hotel

Meeting Place: Second Baptist Church, Business Men's Class Room (Adams Street Entrance)

Officers

President—E. L. Bishop, Nashville, Tenn.
First Vice-President—J. H. Mason Knox, Jr., Baltimore, Md.
Second Vice-President—J. D. Dowling, Birmingham, Ala.
Third Vice-President—Miss Margaret East, Louisville, Kentucky.
Secretary-Treasurer—R. H. White (Ph.D.), Nashville, Tennessee.
Hosts from the Richmond Academy of Medicine—W. B. Foster and C. L. Outland, Richmond.

Monday, November 13, 8:00 p. m.

Meeting of the Governing Council,
Jefferson Hotel, Room 630

Tuesday, November 14, 9:00 a. m.

Second Baptist Church, Business Men's Class Room
(Adams Street Entrance)

GENERAL SCIENTIFIC SESSION

President's Address: "Some Objectives in Federal and State Relations," E. L. Bishop, Nashville, Tenn.

"The Value of a Public Health Association and Its Branches," Haven Emerson, President, American Public Health Association, New York, N. Y.

"Effect of the Depression on Public Health Organization and Public Health Problems," Louis I. Dublin, Metropolitan Life Insurance Company, New York, N. Y.

"Rural Health Organization in the United States: Past, Present and Future," Allen W. Freeman, School of Hygiene and Public Health, Johns Hopkins University School of Medicine, Baltimore, Md.

"The Administration of a State Health Department," W. F. Draper, State Commissioner of Health, Richmond, Va.

Tuesday, November 14, 12:30 p. m.

Luncheon Meeting of the Governing Council,
Jefferson Hotel, Flemish Room.

Tuesday, November 14, 2:00 p. m.

Second Baptist Church, Business Men's Class Room
(Adams Street Entrance)

BUSINESS SESSION

(a) Reports of Committees, and (b) Election of Officers.

Tuesday, November 14, 3:00 p. m.

Second Baptist Church, Business Men's Class Room
(Adams Street Entrance)

PUBLIC HEALTH NURSING SECTION

(I) "The School Program in a Generalized Health Service"—

(a) "Placing the Responsibility for Health Education," Miss Elma Rood, Kentucky.

(b) "Cooperation Between Health and Educational Organizations," Miss Mary Mastin, State Health Department, Richmond, Va.

(c) "School Nursing Program," Miss Gladys Piper, Sullivan County Health Department, Blountsville, Tenn.

General discussion.

(II) "Relationship of State Health Department to City Nursing Organizations," Mrs. Bride Lee Cawthon, City Health Department, Memphis, Tenn.

Discussion opened by Miss Margaret East, State Health Department, Louisville, Ky.

Tuesday, November 14, 3:00 p. m.

Second Baptist Church, Church Parlor
(Adams Street Entrance)

SANITARY OFFICERS' SECTION

(I) "Use of Federal Relief and Public Works Funds for Sanitary Improvements"—

(a) "Sewerage Systems," E. S. Tisdale, State Health Department, Charleston, West Va.

(b) "Privy Construction," Mr. H. A. Kroeze, State Health Department, Jackson, Miss.

(c) "Malaria Control," Mr. H. R. Fullerton and Mr. Tuggle, Shelby County, Tennessee; T. F. Abercrombie, State Health Officer, Atlanta, Ga.

(II) "Policies, Practices, Accomplishments and Prospects for Future Work."

Wednesday, November 15, 9:00 a. m.

The State Capitol
Chamber of the House of Delegates

Warren F. Draper, State Health Commissioner, Richmond, presiding.

Program arranged by the Departments of Health of the Commonwealth of Virginia, of Henrico County and of the City of Richmond, by invitation, as a joint activity of the Section on Public Health, Southern Medical Association, and of the Southern Branch, American Public Health Association.

1. "Demonstration of Scarlet Fever Studies of the Richmond City Department of Health," W. B. Foster, City Health Officer, and J. D. Reid, Richmond, Va.

2. "Diphtheria Immunization Program of the State, City, and County Health Departments," W. B. Foster, City Health Officer, and I. C. Riggin, Director of Rural Health, State Department of Health, Richmond, Va.

3. "The Tuberculosis Program in Henrico County," E. C. Harper, Consultant in Tuberculosis, State Department of Health, Richmond, Va.

4. "The Program of Prenatal Work in Henrico County," E. L. Stebbins, County Health Officer, Richmond, Va.

5. "Demonstration of Teaching the Deaf Child," C. L. Outland, Medical Director, Richmond Public Schools, Richmond, Va.

Wednesday, November 15, 9:00 a. m.

Second Baptist Church, Business Men's Class Room
(Adams Street Entrance)

PUBLIC HEALTH NURSING SECTION

(I) "The Public Health Nurse Today: What She Is, What She Does," Miss Pearl McIver, U.S.P.H.S., Washington, D. C.

Discussion opened by Miss Mary J. Dunn, Vanderbilt University, Nashville, Tenn.

(II) "The Value of Records as Supervisory Tools," Miss Zoe La Forge, Jefferson County Health Department, Birmingham, Ala.

Discussion opened by Miss Kathleen Leahy, Richmond School of Social Service and Public Health, Richmond, Va.

Wednesday, November 15, 9:00 a. m.

Second Baptist Church, Church Parlor
(Adams Street Entrance)

SANITARY OFFICERS' SECTION

(I) "School Sanitation"—

(a) "Cooperation Between Health and Education Organizations in the Improvement of School Sanitation."

Discussion opened by (1) Alabama, Mr. Geo. H. Hazlehurst, State Health Department, Montgomery; (2) Tennessee, Mr. H. D. Schmidt, State Health Department, Nashville; and (3) Virginia, Dr. B. B. Bagby, State Health Department, Richmond.

General discussion.

Wednesday, November 15, 2:00 p. m.

Second Baptist Church, Business Men's Class Room
(Adams Street Entrance)

GENERAL SCIENTIFIC SESSION

1. "Studies of Rural Health Work," Joseph W. Mountin, U.S.P.H.S., Washington, D. C.
2. "Present Status of Scarlet Fever Immunization," M. V. Veldee, U.S.P.H.S., Washington, D. C.
3. "Present Status of Diphtheria Immunization," G. F. McGinnes and E. L. Stebbins, State Health Department, Richmond, Va.
4. "Some Studies in Tuberculosis: Alabama and Tennessee," A. H. Graham and P. W. Auston, Alabama; and R. S. Gass and H. C. Stewart, Tennessee.

AMERICAN SOCIETY OF TROPICAL MEDICINE

Headquarters: Jefferson Hotel

Officers

President—G. R. Callender, Fort Sam Houston, Tex.
First Vice-President—A. W. Sellards, Boston, Mass.
Second Vice-President—W. A. Sawyer, New York, N. Y.
Secretary-Treasurer—Henry E. Meleney, Nashville, Tenn.
Assistant Secretary—Damaso de Rivas, Philadelphia, Pa.
Editor, *American Journal of Tropical Medicine*—Charles F. Craig, New Orleans, La.
Councilors—B. C. Crowell, Chicago, Ill.; E. B. Vedder, Washington, D. C.; E. C. Faust, New Orleans, La.; H. C. Clark, Ancon, Canal Zone; Alfred C. Reed, San Francisco, Calif.
Hosts from the Richmond Academy of Medicine—G. F. McGinnes and W. A. Plecker, Richmond.

Wednesday, November 15, 9:30 a. m.

General Session, Southern Medical Association,
Hotel John Marshall, Roof Garden

1. 9:30-9:55. "Some Preliminary Observations on Naturally Induced Malaria," Mark F. Boyd, Rockefeller Foundation, Tallahassee, Fla.

Wednesday, November 15, 2:00 p. m.

Second Baptist Church, Dining Room
(Adams Street Entrance)

2. "Relapsing Fever in Texas. III. *Ornithodorus turicata*, a Vector of the Disease" (Lantern Slides), Hardy A. Kemp, Dallas, Tex.
3. "Atypical Yaws" (Lantern Slides), P. W. Wilson, U. S. Navy and Gorgas Memorial Laboratory, Panama, R. P.
4. "Intestinal Acariasis Due to *Tyroglyphus longior* Gervais" (Lantern Slides), E. H. Hinman and R. H. Kampmeier, New Orleans, La.
5. "A Case of Darling's Histoplasmosis (So-Called Cryptococcus Infection) in an Infant" (Lantern Slides), (by invitation), Katharine Dodd and Edna H. Tompkins, Nashville, Tenn.
6. "Cultivation of the Micro-Organism of Darling's Histoplasmosis" (Lantern Slides), W. A. DeMonbreun, Nashville, Tenn.
7. "Some Further Experiences with Fouadin in Granuloma Inguinale" (Lantern Slides), (by invitation), T. V. Williamson, Norfolk, Va.
8. "Further Studies on the Cultivation of *Mycobacterium leprae*" (Lantern Slides), Earl B. McKinley and Elizabeth Verder, Washington, D. C.
9. "A New Water-soluble Chaulmoogric Acid Derivative" (Lantern Slides), George A. Emerson, Hamilton H. Anderson, and Chauncey D. Leake, San Francisco, Calif.

Thursday, November 16, 9:00 a. m.

Jefferson Hotel, Auditorium

10. President's Address: "The Differential Pathology of Dysentery," G. R. Callender, Fort Sam Houston, Texas.
11. "The Histopathology of Amebic Colitis in the Kitten and in Man" (Lantern Slides), Henry E. Meleney and William W. Frye, Nashville, Tenn.
12. "Untoward Effects of Anti-Amebic Drugs" (Lantern Slides), Hamilton H. Anderson and Alfred C. Reed, San Francisco, Calif.
13. "Amebiasis Among 1,000 Prisoners: Final Report" (Lantern Slides), Alfred C. Reed, San Francisco, California.
14. "Epidemiological Aspects of Schistosomiasis Mansoni (Manson's blood fluke infection) in Puerto Rico" (Lantern Slides), William A. Hoffman, San Juan, P. R., and Ernest Carroll Faust, New Orleans, Louisiana.
15. "Important Factors Operative in Reducing Hookworm Disease Since 1902," Charles Wardell Stiles, Washington, D. C.

16. "The Anthelmintic Properties of Certain Alkyl Phenols" (Lantern Slides), Paul D. Lamson, Harold W. Brown and Paul D. Harwood, Nashville, Tennessee.

17. "Tropical Medicine in New York City," Thomas T. Mackie, New York, N. Y.

Thursday, November 16, 12:30 Noon

Luncheon, Jefferson Hotel, Flemish Room

Luncheon will be followed by an informal discussion of the development of tropical medicine in the United States.

Friday, November 17, 9:00 a. m.

Joint Session of Section on Medicine and Section on Gastroenterology, Southern Medical Association

Centenary Methodist Church, Sunday School Auditorium

18. "Bacillary Dysentery in Relation to Chronic Ulcerative Colitis" (Lantern Slides), Thomas T. Mackie, New York, N. Y.

Dr. Mackie has been invited to represent the American Society of Tropical Medicine at the Joint Session of these two Sections.

Friday, November 17, 10:00 a. m.

Jefferson Hotel, Auditorium

19. "Blood Pressure and Hemoglobin in the Guatemalan Highlands," George C. Shattuck, Boston, Mass.

20. "Dangers to Southerners in Northward Migration" (Lantern Slides), (by invitation), Clarence A. Mills, Cincinnati, Ohio.

21. "Some Observations on the Effects of Tropical Climate Under Experimental Conditions" (Lantern Slides), Earl B. McKinley, Washington, D. C., and Trinita Rivera, San Juan, P. R.

22. "The Possible Advantages of Cure Resorts in the Tropics" (Lantern Slides), Louis F. Bishop and Louis F. Bishop, Jr., New York, N. Y.

23. "The Effect of Vitamin A Deficiency on the Resistance of Rats to Infection with *Trichinella spiralis*" (Lantern Slides), O. R. McCoy, Rochester, N. Y.

24. "Incidence of Intestinal Protozoa with Special Reference to *E. histolytica* in the Population of Fresnillo, Zacatecas, Mexico" (Lantern Slides), Justin Andrews, Baltimore, Md.

25. "Quinine and Plasmochin Therapy in Infections with *Plasmodium circumflexum*" (by title), Reginald D. Manwell, Syracuse, N. Y.

26. "The Feeding Habits of Some Venezuelan Anopheles" (by title), Rolla B. Hill, Madrid, Spain.

27. "Further Studies on the Effect of Amebacidal Drugs on Tissue Culture Cells (arsenious trithiosalicylic acid, carbarsone, kurchi bismuth iodide, proparsamide, vioform)," (by title), Mary Jane Hogue, Philadelphia, Pa.

Business Session.

Friday, November 17, 2:00 p. m.

Joint Session with the National Malaria Committee.

Second Baptist Church, Business Men's Class Room (Adams Street Entrance)

28. "Hibernation of *Anopheles quadrimaculatus*, Say, in Southern Louisiana," E. H. Hinman, Department of Tropical Medicine, Louisiana State University Medical Center, New Orleans, La.

Discussion opened by W. V. King, U. S. Bureau of Entomology, Orlando, Fla.; F. C. Bishopp, U. S. Bureau of Entomology, Washington, D. C.

29. "Splenomegaly in Benign Tertian Malaria," W. K. Stratman-Thomas, International Health Division, Rockefeller Foundation, Station for Malaria Research, Florida State Board of Health, Tallahassee, Florida.

Discussion opened by M. A. Fort, Health Commissioner, Decatur County, Bainbridge, Ga.

30. "Transmission of Malaria in Drug Addicts by Intravenous Use of Narcotics," James A. Bradley, Assistant Professor of Medicine, Louisiana State University Medical Center, New Orleans, La.

Discussion opened by Wm. Krauss, Meridian, Miss.

31. "A Third Year's Observation on Malaria in Panama, with Special Reference to Control with Atabrine" (Lantern Slides), (Mr.) W. H. W. Komp, Sanitary Engineer, U.S.P.H.S., Ancon, Canal Zone, and H. C. Clark, Director, Gorgas Memorial Laboratory, Panama, R. P.

Discussion opened by Henry E. Meleney, Department of Preventive Medicine, Vanderbilt University School of Medicine, Nashville, Tenn.

32. "What is the Type of Erythrocyte Attacked by the Malaria Parasite?," Paul Eaton, Director, Bureau of Laboratories, Florida State Board of Health, Jacksonville, Fla.

Discussion opened by T. H. D. Griffitts, Surgeon, U.S.P.H.S.; Director, Division of Malaria Control Studies, Florida State Board of Health, Jacksonville, Fla.

33. "Observations on Winter Infection Rates in A. *maculipennis* and *superpictus* in Bulgaria," Ralph K. Collins, International Health Division, Rockefeller Foundation, New York, N. Y.

34. "Anophelines and Malaria in the Pacific Northwest" (Lantern Slides), (by invitation), (Mr.) H. M. Stage, U. S. Bureau of Entomology, Portland, Oregon. To be read by F. C. Bishopp, U. S. Bureau of Entomology, Washington, D. C.

SOUTHERN SECTION, SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE

Headquarters: Jefferson Hotel

Meeting Place: Hotel John Marshall

Officers

Chairman—Ernest Carroll Faust, New Orleans, La.
Vice-Chairman—Harold Cummins, New Orleans, La.
Secretary—Charles F. Craig, New Orleans, La.
Hosts from the Richmond Academy of Medicine—W. R. Bond and H. B. Haag, Richmond.

Wednesday, November 15, 9:30 a. m.

Hotel John Marshall,
Private Dining Room, Mezzanine Floor

1. "The Specificity of the O. Receptor Complex of *B. proteus* x-19," Hardy A. Kemp, Department of Bacteriology, Hygiene and Preventive Medicine, Baylor University, Dallas, Tex.
2. "Effect of the Extraneous Injection of Sclerosing Substances," W. E. Alton Ochsner and H. R. Mahorner, Department of Surgery, School of Medicine, Tulane University of Louisiana, New Orleans, La.
3. "The Experimental Pharmacological and Therapeutic Study of Mono-Brom Saligenin" (Lantern Slides), David I. Macht, Pharmacological Research Laboratories, Hynson, Westcott & Dunning, Baltimore, Md.
4. "Concerning Vaccination of Monkeys Against Acute Anterior Poliomyelitis," John A. Kolmer, Department of Medicine, Temple University, Philadelphia, Pa.
5. "Attempts to Transmit the Virus of Acute Anterior Poliomyelitis through *Aedes aegypti*," James S. Simmons, Raymond A. Kelser and Virgil H. Cornell, Department of Laboratories, Army Medical School, Washington, D. C.
6. "Phases in the Migration and Development of Manson's Blood-fluke, *Schistosoma mansoni*, in the Body of the Experimental Mammal," Ernest Carroll Faust, Department of Tropical Medicine, School of Medicine, Tulane University of Louisiana, New Orleans, La.

SECTION ON MEDICAL EDUCATION

Hotel John Marshall,
Private Dining Room, Mezzanine Floor

Officers

Chairman—John Walker Moore, Louisville, Ky.
Vice-Chairman—Earl B. McKinley, Washington, D. C.
Secretary—Ernest W. Goodpasture, Nashville, Tenn.
Hosts from the Richmond Academy of Medicine—J. A. Hughes and W. T. Sanger, Richmond.

Wednesday, November 15, 2:00 p. m.

Hotel John Marshall,
Private Dining Room, Mezzanine Floor

1. Chairman's Address: "Student-preceptor System in Clinical Clerkship Work" (Lantern Slides), John Walker Moore, University of Louisville School of Medicine, Louisville, Ky.
2. "Elective Courses in the Medical Curriculum," John H. Musser, Tulane University School of Medicine, New Orleans, La.
3. "A New Emphasis in Teaching Physiology" (Lantern Slides), Errett Cyril Albritton, George Washington University School of Medicine, Washington, D. C.
4. "Environmental Case Studies in the Teaching of Preventive Medicine," Henry E. Meleney, Vanderbilt University School of Medicine, Nashville, Tennessee.
5. "Teaching Bacteriology as a Part of the Function of the Department of Medicine" (Lantern Slides), David T. Smith, Duke University School of Medicine, Durham, N. C.
6. "Experiences of Teaching Bacteriology in the Department of Medicine," Ralph S. Muckenfuss, Washington University School of Medicine, St. Louis, Mo.

Election of Officers.

WOMAN'S AUXILIARY TO THE SOUTHERN MEDICAL ASSOCIATION

TENTH ANNUAL MEETING

Headquarters and Meeting Place: Jefferson Hotel

Officers

President—Mrs. A. A. Herold, Shreveport, La.
President-Elect—Mrs. Southgate Leigh, Norfolk, Va.
First Vice-President—Mrs. J. Bonar White, Atlanta, Ga.
Second Vice-President—Mrs. Sidney W. Collier, Birmingham, Ala.
Recording Secretary—Mrs. Earl D. McBride, Oklahoma City, Okla.
Corresponding Secretary—Mrs. C. B. Erickson, Shreveport, La.
Treasurer—Mrs. W. B. Majors, Birmingham, Ala.
Historian—Mrs. J. D. Thompson, Port Arthur, Tex.
Parliamentarian—Mrs. V. A. Stilley, Benton, Ky.

Tuesday, November 14, 10:00 a. m.

Jefferson Hotel, Tea Room

Meeting of the Executive Board, the President, Mrs. Arthur A. Herold, presiding.

Wednesday, November 15, 9:30 a. m.

Opening General Session, Jefferson Hotel, Auditorium

All women attending Southern Medical Association meeting are invited to attend.

The President, Mrs. Arthur A. Herold, presiding.

Invocation—Rev. Beverley D. Tucker, Jr., D.D., Rector, St. Paul's Episcopal Church, Richmond.

Addresses of Welcome—

Mrs. Stuart McGuire, General Chairman, Richmond.

Mrs. Wm. Lett Harris, President, Woman's Auxiliary to the Medical Society of Virginia, Norfolk.

Mrs. J. B. Dalton, President, Woman's Auxiliary to the Richmond Academy of Medicine, Richmond.

Response to the Addresses of Welcome—Mrs. S. A. Collom, Sr., Texarkana, Tex.

Reading of Minutes—Mrs. Earl D. McBride, Secretary, Oklahoma City, Okla.

Roll Call by States.

Report of Credential and Registration Committee—Mrs. Lee E. Sutton, Richmond.

Report of Entertainment Committee—Mrs. Stuart McGuire, Chairman, Richmond.

Report of Memorial Committee—Mrs. Sid W. Collier, Second Vice-President, Birmingham, Ala.

Report of Officers.

Report of Organization Committee—Mrs. J. Ralston Wells, Daytona Beach, Fla.

Report of Publicity Chairman—Mrs. Estis H. Hargis, Birmingham, Ala.

Report of Jane Todd Crawford Memorial Committee—Mrs. C. W. Garrison, Little Rock, Ark.

Report of Committee on Revision of Constitution and By-Laws—Mrs. Oliver W. Hill, Knoxville, Tenn.

Report of Custodian of Records—Mrs. A. T. McCormack, Louisville, Ky.

Report of Research Committee—Mrs. S. A. Collom, Sr., Texarkana, Tex.

Report of Resolutions Committee—Mrs. S. C. Jamison, New Orleans, La.

Recommendations of Executive Board.

Wednesday, November 15, 1:30 p. m.

Auxiliary Luncheon at Jefferson Hotel, Main Dining Room, 75c per plate.

Auxiliary meeting continued until concluded.

State Reports.

New Business.

Report of Nominating Committee.

Election of Officers.

Introduction of New Officers.

Announcements by the New President, Mrs. Southgate Leigh, Norfolk, Va.

Reading of Minutes.

Adjournment.

Wednesday, November 15, 4:30 p. m.

Jefferson Hotel, Tea Room

Post-Convention Board Meeting, Mrs. Southgate Leigh, President, presiding.

Committees on Arrangements for Ladies Entertainment, Richmond Meeting

General Chairman—Mrs. Stuart McGuire.
Vice-General Chairman—Mrs. J. B. Dalton.
Place of Meeting—Mrs. J. B. Dalton, Chairman.
Registration—Mrs. Lee E. Sutton, Chairman.
Publicity—Mrs. W. T. Sanger, Chairman.
Auxiliary Luncheon—Mrs. W. F. Drewry, Chairman.
Toastmistress for Luncheon—Mrs. Allison Hodges, Chairman.
Hospitality—Mrs. W. B. Porter, Chairman; Mrs. Thomas W. Murrell, Co-Chairman.
Golf—Mrs. J. W. Hannabas, Chairman.
Williamsburg Trip—Mrs. Francis Upshur, Chairman.
Sightseeing Tour of City—Miss Elizabeth Peple, Chairman.
Tea—Mrs. Wallace Gill, Chairman.

Officers of Woman's Auxiliary to the Richmond Academy of Medicine

President—Mrs. J. B. Dalton.
Recording Secretary—Mrs. Harry Hinchman.
Treasurer—Mrs. J. W. Hannabas.
Corresponding Secretary—Mrs. Warren F. Draper.

Officers of Woman's Auxiliary to the Medical Society of Virginia

President—Mrs. William Lett Harris, Norfolk.
President-Elect—Mrs. Joseph Bear, Richmond.
Recording Secretary—Mrs. Fletcher J. Wright, Petersburg.
Corresponding Secretary—Mrs. Charles A. Saunders, Norfolk.
Treasurer—Mrs. Reuben F. Simms, Richmond.

GOLF

The Country Club of Virginia, Hermitage Golf Club, Lakeside Country Club, Glenwood Golf Club (public), Laurel Golf Club (public), and Westwood Golf Club (public) extend privileges to the members of the Southern Medical Association and other visiting physicians attending the Richmond meeting, and their ladies. Unless the golfer is accompanied by a member of the club, he or she should wear the official badge when visiting the private clubs. The grounds fee for the private clubs is $1.00.

The golf tournament for men will be held at the Country Club of Virginia on Thursday, November 16. In addition to the *Washington Post* Cup, the major trophy in the tournament without handicap, and the *Dallas Morning News* Cup, the major trophy in the handicap tournament, both to be played for each year until won three times in succession by the same golfer, there will be other trophies for the winner and runner-up in both the handicap tournament and the tournament without handicap. All who enter the handicap tournament must present to the starter their club handicap, certified to by their local secretary or professional.

The golf tournament for ladies will be held at the Country Club of Virginia Friday, November 17, 9:00 a. m. to 12:00 noon. In addition to the *Memphis Commercial-Appeal* silver trophy, to be played for each year until won three times in succession by the same lady golfer, there will be trophies for the winner and runner-up.

Dr. Paul W. Howle, 1015 West Franklin Street, Richmond, is Chairman of the Golf Committee, and has associated with him Dr. Robert C. Bryan, Dr. E. U. Wallerstein and Dr. Manfred Call. Mrs. J. W. Hanabas, Richmond, is Co-Chairman for ladies.

TRAP SHOOTING TOURNAMENT

The eighth annual Trap Shooting Tournament of the Southern Medical Association will be held at the C and O Gun Club, Richmond, Virginia, under the auspices of the Richmond Academy of Medicine, Thursday, November 16, at 1:00 p. m. Cars to convey the shooters to

the club will leave the Hotel John Marshall promptly at 12:30 p. m.

The program will consist of 100-16 yard targets, Class A, B and C; 25 handicap; 12 pairs of doubles; and 50 skeet—the skeet is optional.

The major trophy, a leg on the *Atlanta Journal* Bowl, to be shot for each year until won three times in succession by the same shooter, and which has been competed for since 1926, will be competed for again this year, the leg to go to the high man on 100-16 yard targets.

Another major trophy, in shoot for the first time last year, is the Bausch and Lomb Microscope complete, donated by McKesson-Doster-Northington, Incorporated, Birmingham, Alabama, to be won three times by the same shooter, twice in succession, for high over all (100-16 yard, handicap and doubles), not including skeet.

There will be a trophy for the winner and runner-up in each class, A, B and C, also in the handicap, doubles and the skeet. All shooters will be eligible to all events.

Rules Governing Shoot

1. With the exception of the method used in classifying shooters, A.T.A. and N.S.A. rules will govern.

2. Shooters will classify themselves in three classes—A, B and C. No attempt will be made at classification prior to the shoot, but each shooter will classify himself on the score he makes. The number of positions shot will be divided by three and the high one-third will constitute Class A, the second one-third will constitute Class B, and the remaining one-third Class C. Any fraction in the division will either be added to or deducted from Class A.

3. Shooting will start promptly at 1:00 p. m., and it is essential that every one be on time; otherwise the program cannot be finished before dark. A referee will call dead or lost targets after each shot; he will interpret all rules; his decision will be final.

4. All ties will be shot off on twenty-five targets.

Shooters who plan to enter the handicap event are requested to send their authenticated handicap to the chairman at least one week in advance of the shoot.

The Committee requests shooters to bring their own guns. Shells of all popular makes will be on sale on the club grounds.

Dr. William B. Porter, Memorial Hospital, Richmond, is Chairman of the Trap Shooting Committee, and will be glad to be of service in any way he can to visiting shooters.

RAILROAD RATES

Special reduced round trip rates have been granted on all railroads on the Identification Certificate Plan. Certificates have been mailed to all members of the Southern Medical Association. *An identification certificate issued from the Southern Medical Association office in Birmingham, Alabama, in advance of the meeting, is absolutely necessary to secure reduced railroad rates.* Physicians who are not members of the Southern Medical Association but are members of their state and county medical societies and wish to attend the meeting, should ask the Southern Medical Association, Empire Building, Birmingham, Alabama, for a certificate.

The special rate applies to Richmond, and to Washington via Richmond, and is one and one-third fare for the round trip, going and returning the same way, or going one way and returning another. The dates of sale are November 10 to 16, with a final limit of thirty days.

TRAVEL ARRANGEMENTS

The Chesapeake and Ohio Railway will operate a "President's Special," leaving Louisville, Kentucky, the home of Dr. Irvin Abell, President of the Southern Medical Association, on Monday, November 13, at 1:30 p. m.

The Seaboard Air Line Railway announces special service from Georgia, Florida, Alabama, Louisiana, Mississippi and Tennessee, with Birmingham and Atlanta as concentration points.

TECHNICAL EXHIBITS

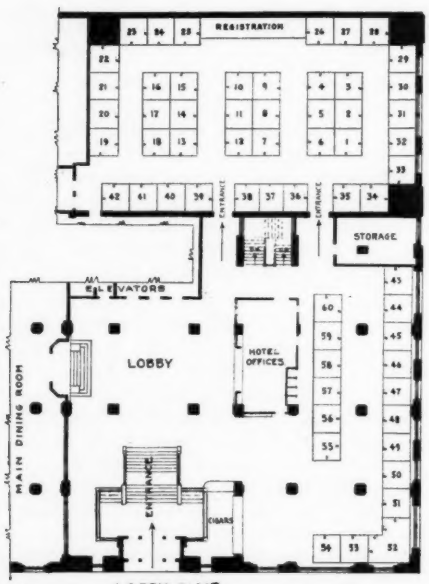
Hotel John Marshall

The Technical Exhibits, always a feature of the annual meeting, will be up to the usual high standard for this meeting. There will be uniform booths and the whole layout will be found very attractive and acceptable. The Technical Exhibits are entertaining and educational. Each physician attending the meeting should spend some time with these exhibits—much is to be learned there. The physicians will find the exhibitors courteous and anxious to answer any questions that may be asked.

Here follow the names of firms who have exhibits and their space number:

	Space
Abbott Laboratories, North Chicago, Ill.	43
Aloe Company, A. S., St. Louis, Mo.	19
American Optical Company, Southbridge, Mass.	42
Bard-Parker Company, Inc., Danbury, Conn.	39
Bausch & Lomb Optical Company, Rochester, N. Y.	23
Bilhuber-Knoll Corporation, Jersey City, N. J.	29-30
Corn Products Sales Company, New York, N. Y.	26
Davies, Rose & Company, Ltd., Boston, Mass.	59
Davis & Geck, Inc., Brooklyn, N. Y.	25
Davis Company, R. B., Hoboken, N. J.	31
Dry Milk Company, Inc., The, New York, N. Y.	17
Eastman Kodak Company, Rochester, N. Y.	6
Foregger Company, The, New York, N. Y.	28
Fougera & Company, E., New York, N. Y.	48
General Electric X-Ray Corporation, Chicago, Ill.	7-8-9
Gerber Products Company, Fremont, Mich.	53
Gilliland Laboratories, Inc., The, Marietta, Pa.	45
Gradwohl School of Laboratory Technique, St. Louis, Mo.	44
Health Products Corporation, Newark, N. J.	40
High Tension Corporation, New York, N. Y.	34
Hoffmann-LaRoche, Inc., Nutley, N. J.	16
Hynson, Westcott & Dunning, Inc., Baltimore, Md.	52
Kalak Water Company, Inc., New York, N. Y.	35

Kelley-Koett Manufacturing Company, Ltd., The, Covington, Ky. 32-33
Lippincott Company, J. B., Philadelphia, Pa..... 13
M and R Dietetic Laboratories, Columbus, Ohio.... 37-38
Majors Company, J. A., New Orleans, La., and Dallas, Tex. 54
Maltine Company, The, New York, N. Y..... 27
McKesson Appliance Company, Toledo, Ohio..... 47
Mead Johnson & Company, Evansville, Ind..... 10-11-12
Medical Bureau, The, Chicago, Ill..... 46
Mellin's Food Company, Boston, Mass..... 4-5
Merck & Company, Inc., Rahway, N. J..... 57-58
Metz Laboratories, H. A., New York, N. Y..... 51
Mosby Company, The C. V., St. Louis, Mo..... 3
Patch Company, The E. L., Boston, Mass..... 49
Petrolagar Laboratories, Inc., Chicago, Ill..... 14-15
Powers & Anderson, Inc., Richmond, Va..... 55
Puritan Compressed Gas Corporation, Kansas City, Missouri 41
S. M. A. Corporation, Cleveland, Ohio..... 1 -2
Sanborn Company, Cambridge A, Mass..... 60
Sandoz Chemical Works, Inc., New York, N. Y..... 56
Searle and Company, G. D., Chicago, Ill..... 24
Spinach Products Company, Columbia, S. C..... 36
Squibb & Sons, E. R., New York, N. Y..... 22
Westinghouse X-Ray Company, Inc., Long Island City, N. Y..... 20-21
Winthrop Chemical Company, New York, N. Y... 50
Zimmer Manufacturing Company, Warsaw, Ind..... 18



LOBBY FLOOR

Book Reviews

Continued from page 968

Intracranial Tumors. By Percival Bailey, Professor of Surgery, University of Chicago. 475 pages, illustrated. Springfield, Illinois: Charles C. Thomas, 1933. Cloth, $6.00.

Just after the dedication page Dr. Bailey places this very appropriate quotation from Dr. Foster Kennedy: "He who cares for patients suffering from brain tumors must bring to his problem much thought and stout action. There is need also of a formidable optimism, for the dice of the gods are loaded." The author stresses the use of dull paper instead of the usual glossy paper for medical books. For this reason pen and ink drawings have been substituted for the usual half tone illustrations. This makes a work which is pleasing and restful to the eyes.

The first chapters are devoted to the problem of tumors in general, followed by the anatomical and physiological considerations. Chapters are devoted to the different types of tumors as to their pathology or location, with a wealth of case reports. Microscopical studies, the symptoms, both objective and subjective, and the differential diagnosis are included. The surgery and treatment of intracranial tumors are briefly considered at the conclusion of each chapter. The concluding chapters are devoted to general diagnosis, differential diagnosis and treatment. There is a valuable bibliography.

Intracranial tumors are considered from the point of view of diagnosis rather than treatment. There is a wealth of illustrations of microscopic and gross studies of intracranial tumors.

This work will prove valuable to anyone who deals with intracranial tumors. It will give the physician and general surgeon the information necessary to send patients to the neurological surgeon before it is too late to give them the benefit of an early operation.

Diseases of the Heart. By William D. Reid, M.D., F.A.C.P., Assistant Professor of Cardiology, Boston University School of Medicine. 105 pages. Newton, Mass.: The Graphic Press, 1933. Price, 55 cents per copy.

This little book presents a summary of the more important clinical features of cardiac disease. It is designed primarily for medical students and the material is clearly and simply presented. The price is commendably low. The tone of the book is entirely practical, and theoretical as well as fundamental considerations of circulatory physiology are omitted. No original ideas are presented.

There is a good deal of disagreement among teachers of medicine concerning the general question of the value of handbooks and synopses. Many teachers believe that such presentations tend to be too dogmatic and to lead the student to believe that correct conclusions as to diagnosis and treatment can be reached by following a few simple rules. If it is granted that a short synopsis of cardiac disorders is desirable it may be said that this book fulfills the need.

Operative Surgery. By Alexander Miles, M.D., LL.D., F.R.C.S.Ed., Consulting Surgeon, Royal Infirmary, Edinburgh, and D. P. D. Wilkie, M.D., F.R.C.S. Ed. and English Professor of Surgery, University of Edinburgh. 579 pages, 321 illustrations. New York: Oxford University Press, 1933. Cloth, $5.25.

Miles and Wilkie have selected a single operation for each surgical condition that may arise, and have fully described it, giving an excellent resumé of the method and technique. At the beginning of the chapters are a brief synopsis of the anatomy of the region that is under discussion. A large number of illustrations serve to fix the operation in the minds of the student. The operations given are those which have been found most practical by the Edinburgh school.

Essentials of Prescription Writing. By Cary Eggleston, M.D., Assistant Professor of Clinical Medicine, Cornell University Medical College, New York City. Fifth Edition, Revised. 155 pages. Philadelphia and London: W. B. Saunders Company, 1933. Cloth, $1.50 net.

This edition differs but little from its predecessor. The text has been rewritten in a number of places in order to clarify the meaning and in the chapter on "Vehicles" a number of new ones have been added. The basic principles of prescription writing are well presented in this handbook.

New and Nonofficial Remedies, 1933, Containing Descriptions of Articles which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1933. 498 pages. Chicago: American Medical Association, 1933. Cloth, $1.50.

The Council performs a distinctive service to the medical profession in the issuance of this volume, as it enables the practitioner to have unbiased information upon the products which the drug houses are placing on the market. Among the various new products accepted are trichlorethylenecalco, nostal, decholin and decholin sodium, several new bismuth preparations for use in the treatment of lues, two halibut oil preparations and pentnucleotide. Related drugs are grouped for ease in reference. A necessary book in the library of the progressive doctor.

Southern Medical News

ALABAMA

The Elmore and the Tallapoosa County Medical Societies held their annual joint meeting in July on Lake Martin.

The Bullock County Medical Society met in Union Springs in August for a homecoming meeting.

The Walker County Medical Society entertained at a barbecue on the Warrior River in August.

The Houston County Medical Society turned their July meeting over to the Houston County Health Department for a Public Health Meeting, with papers on the program by Dr. J. B. Ryan, U. S. Public Health Service; Dr. D. G. Gill, State Department of Health, Montgomery; and Dr. M. S. Davie, Dothan.

The Gorgas Medical Society of the University of Alabama recently honored Dr. E. W. Goodpasture, Nashville, Professor of Pathology at Vanderbilt University, with an Honorary Fellowship in the Society.

Dr. H. Earle Conwell, Employees' Hospital, Fairfield, read a paper before the Clinical Congress of the Connecticut State Medical Society at the Yale University Medical School in September.

Dr. James G. McAlpine, U. S. Public Health Service, has been appointed to succeed Dr. Leon C. Havens, deceased, as Director of Laboratories of the State Department of Health, Montgomery.

The Medical Association of the State of Alabama is sponsoring a series of courses in obstetrics to be held during the fall and winter months by Dr. James R. McCord, Atlanta, Professor of Obsetrics and Gynecology at Emory University School of Medicine.

Dr. Wiley Dennis Wood, Camp Hill, and Miss Linda Mae Sullivan were married in June.

Dr. James Samuel Snoddy, Haleyville, and Miss Jane Lakeman were married in July.

DEATHS

Dr. Harold Caldwell Dilworth, Jasper, aged 31, died July 14 of streptococcic sore throat.

Dr. William Lucius Rosamond, Birmingham, aged 64, died August 12.

Dr. Clarence Eugene Sellers, McCullough, aged 54, died August 17 as the result of an automobile accident.

ARKANSAS

Dr. W. R. Brooksher, Fort Smith, has been appointed to fill the unexpired term of the late Dr. William R. Bathurst as Secretary of the Arkansas Medical Society and Editor of the *Journal*.

The Tenth Councilor District Medical Society met in Fayetteville in September for its annual session and elected the following officers for the coming year: Dr. Allan Gilbert, Fayetteville, President; Dr. Clyde McNeil, Rogers, Vice-President; and Dr. I. F. Jones, Fort Smith, Secretary-Treasurer.

Dr. Arthur M. Gibbs, Hamburg, Director of the Ashley County Health Unit, has been granted a fellowship by the Rockefeller Foundation to study at Johns Hopkins School of Hygiene and Public Health.

Dr. R. Q. Patterson, Little Rock, has been appointed to succeed the late Dr. William R. Bathurst as Professor of Dermatology at the University of Arkansas School of Medicine.

The staffs of the Leo N. Levi Memorial Hospital and Charles Steinberg Clinic held their third Clinical Conference at Hot Springs National Park in October.

Dr. Allyn R. Power, Hot Springs, and Miss Lillion Grasty were married in July.

DEATHS

Dr. Eugene H. Winkler, DeWitt, aged 66, died in Little Rock August 19.

Dr. James Riley Stephens, Hackett, aged 81, died August 10 in a Fort Smith hospital of injuries received in an automobile accident.

Dr. J. B. Chase, Foreman, aged 60, died June 8 of cerebral hemorrhage.

DISTRICT OF COLUMBIA

Garfield Memorial Hospital, Washington, has a new Radiologic Department with the enlarging of the old department by the establishment of the Helen L. and Mary E. Warwick Clinic for the care and treatment of women afflicted with cancer, this new addition being made possible by a bequest in the will of the late Randolph T. Warwick. Admiral Cary T. Grayson, retired, will be in charge of the Warwick Clinic.

George Washington University School of Medicine has announced the following newly appointed full-time faculty members: Dr. Edward Bright Vedder, Professor of Experimental Medicine and Executive Officer of the Department of Pathology; Dr. James Leslie Snyder, Instructor in the Department of Pathology; Dr. William Henry Waller, Instructor in the Department of Anatomy; Dr. John Ralston Tate, Teaching Fellow in Anatomy; and Dr. Juanita Thompson, Research Assistant in the Department of Experimental Medicine.

Dr. James A. Gannon, Washington, has resigned his teaching position in the Department of Surgery of the Georgetown University School of Medicine, and also his position as Attending Surgeon at the Georgetown University Hospital, after having served twenty-five years and fifteen years, respectively, in these positions.

Georgetown University School of Medicine announces the appointment of Dr. G. H. Hansmann, Associate Professor of Pathology in the Department of Pathology.

DEATHS

Dr. Powell C. Fauntleroy, Washington, Colonel, U. S. Army, retired, aged 63, died July 30.

Dr. Francis Hannibal Miner, Washington, aged 69, died August 13.

FLORIDA

The Pinellas County Medical Society held its annual meeting in St. Petersburg in October and elected the following officers for the coming year: Dr. C. C. Rudolph, President; Dr. G. M. Lochner, First Vice-President; Dr. N. W. Gable, Jr., Second Vice-President; Dr. O. O. Feaster, Secretary; and Dr. W. C. McConnell, Treasurer; all of St. Petersburg.

Dr. Eustis R. Marshburn, Marianna, is the newly appointed Medical Officer of the Western Florida District; and Dr. Thomas S. Kennedy, Milton, has been made Sanitary Officer of the same district.

The Central Florida Medical Society, at its summer meeting, elected Dr. Leroy H. Oetjen, Leesburg, President.

Dr. Horace A. Day, Orlando, has been appointed to succeed Dr. Nicholas A. Blatzell, Marianna, as a member of the State Board of Medical Examiners.

DEATHS

Dr. William Gustav Freiday, Fort Lauderdale, aged 73, died June 7 of cerebral thrombosis.

GEORGIA

Dr. Thomas H. Hancock, Atlanta, has received from the Georgia Power Company a forty-year service pin, in recognition of his service as Chief Surgeon for the Company.

Dr. Roy R. Kracke, Atlanta, is the first member of the Georgia Medical Association to have his name inscribed on the L. G. Hardman Silver Loving Cup, this honor coming to him for important contributions in the field of hematology.

Dr. J. O. Elrod, Forsyth, and Dr. C. F. Griffith, Griffin, have received reappointments for four-year terms to the State Board of Medical Examiners.

Dr. D. T. Rankin, Milledgeville, has been appointed to fill an unexpired term on the State Board of Medical Examiners.

Dr. and Mrs. Frank K. Boland, Atlanta, entertained members of the Fifth District Medical Society and the Fulton County Medical Society and their wives at a buffet supper recently.

The University of Georgia Medical Department, through its Dean, Dr. W. L. Moss, Augusta, has announced the establishment of a new Department of Bacteriology, with the appointment to the faculty of Dr. James A. Kennedy, formerly with the University of Rochester School of Medicine, New York; Dr. F. C. Lee, formerly with Johns Hopkins Hospital, Baltimore; Dr. J. O. Pinkston, formerly with Harvard University Medical School, Boston; and Dr. M. S. Dooley, formerly with the Syracuse University College of Medicine, Syracuse, New York.

Dr. and Mrs. E. H. Lamb, Cornelia, were hosts recently to members of the Habersham County Medical Society and the auxiliary.

Dr. Rudolph Bell, Thomasville, is taking a postgraduate course at the Department of Urology of the New York Hospital, New York City.

Dr. Gerald Haynes Teasley, Atlanta, and Miss Anne Redus Smith were married in July.

Dr. Martin Van Buren Teem and Miss Louise Greene, both of Marietta, were married in July.

Dr. Oscar Beryl Murray, Lafayette, and Miss Alice Smith were married in June.

Dr. Cyrus Warren Strickler, Jr., Atlanta, and Miss Elizabeth Magruder Horter were married in July.

DEATHS

Dr. James Dawkins Cromer, Atlanta, aged 65, died August 31.

Dr. J. G. Martin, Milner, aged 81, died August 8.

Dr. James Herbert Smith, Amsterdam, aged 69, died August 15.

KENTUCKY

The University of Louisville conferred the honorary degree of Doctor of Science upon Sir Wilfred Thomason Grenfell when he delivered the commencement address at the University graduating exercises in June.

Dr. James Corey Riffe, Covington, and Miss Mildred Hood Sweeney were married August 1.

DEATHS

Dr. William G. Kinsolving, Princeton, aged 76, died July 27.

Dr. Samuel T. Hubbs, Elizabethtown, aged 90, died August 1 of cerebral hemorrhage.

Dr. Moses Collins, Lexington, aged 68, died August 12 of subacute bacterial endocarditis.

Dr. Robert Lee Woodard, Hopkinsville, aged 59, died July 29 of cerebral hemorrhage.

Dr. Joseph N. Fireline, Owensboro, aged 64, died August 25 as the result of injuries received in a fall from an automobile.

Dr. Otto Dibrell Bertram, Sunnybrook, aged 49, died August 1 of tuberculosis.

Dr. Josiah Graves Furnish, Covington, aged 80, died September 8 of pneumonia.

Dr. Herbert Porter Stivers, Buechel, aged 62, died August 21 of heart disease.

LOUISIANA

Dr. George S. Bel, New Orleans, and Dr. Jackson J. Ayo, Raceland, have been appointed members of the Louisiana State Board of Medical Examiners in place of Dr. Leon J. Menville, New Orleans, and Dr. James E. Knighton, Shreveport. Dr. Bel is President of the Board; Vice-Presidents are Dr. Robert W. O'Donel, Monroe; Dr. Edmund L. Leckert, New Orleans; and Dr. Ayo; and Secretary-Treasurer, Dr. Roy B. Harrison, New Orleans.

Dr. Katharine Havard, New Orleans, is the first woman physician to be elected from Louisiana to membership in the American College of Surgeons.

The Second District Medical Society, at a meeting in September, elected the following officers for the coming year: Dr. Joseph Kopfler, Kenner, President; Dr. P. Arman Donaldson, Reserve, Vice-President; and Dr. Lionel Waguespack, Vacherie, Secretary-Treasurer.

Dr. Lucious Lamar Davidge, Amite, and Miss Ruth Marsalis Smith were married in July.

DEATHS

Dr. Edmund Denegre Martin, New Orleans, aged 70, died July 21 of nephritis and arteriosclerosis.

Dr. James Phares O'Kelley, New Orleans, aged 62, died July 17 of heart disease.

Dr. Walter Clarence Coney, Jonesville, aged 65, died July 8 of heart disease.

Dr. Theodore Shay Smith, Elton, aged 74, died August 21 in a Lake Charles hospital.

Dr. Buford K. Parrish, Mansfield, aged 45, died August 26.

MARYLAND

The Medical and Chirurgical Faculty of Maryland met at Cumberland in September for its semiannual session, with the Allegany-Garrett County Medical Society as host for the occasion.

Dr. Eugene C. Peck is the newly appointed Health Officer of Garrett County; and also a Deputy State Health Officer.

DEATHS

Dr. John Davis Gambrill, Baltimore, aged 26, intern at the Johns Hopkins Hospital, died instantly August 8 in an automobile accident.

Dr. Waitman T. Willey, Baltimore, aged 57, died July 29 of carcinoma of the stomach.

Dr. John Joseph Michael Farrington, Mechanicsville, aged 28, died August 14 of accidental drowning.

Dr. F. J. Coughlin, Baltimore, aged 47, died July 27, following an operation for appendicitis.

MISSISSIPPI

Dr. Harrison Butler, formerly of McComb, has moved to Centreville, where he will open offices for practice.

Continued on page 26

GREETINGS TO THE MEMBERS

OF THE

SOUTHERN MEDICAL ASSOCIATION

On the Occasion of Their Annual Meeting

At Richmond, Virginia, November 14-17

It is our wish that your Sessions may be a great pleasure and success and that the scientific reports may arouse in you a renewed enthusiasm for clinical practice.

Since 1919, you have used the products of our Laboratories and have supported our institutions with your prescriptions.

We took the products of our researches into Georgia, with the late Dr. Joseph Goldberger, and were fortunate in doing our small bit in proving the value of Vitamine-G (Goldberger)—as found in Brewers' Yeast—as the most modern treatment of Pellagra.

We were loyal to you then and defend your ethics now.

As the first manufacturers of Vitamine-B in America, for clinical use, we are working "under the NRA" for you.

Ask us for free clinical packages for your office.

⁘

THE HARRIS LABORATORIES

TUCKAHOE, NEW YORK

Continued from page 1012

Dr. W. L. Little, Wesson, is the newly appointed part-time Health Officer for Copiah County.

Dr. Francis Dixon has opened offices in Natchez since his return from New Orleans.

Dr. H. M. Smith, Natchez, announces the association with him of Dr. W. H. Smith, Memphis.

Dr. James Q. Fountain, formerly of Memphis, Tennessee, has moved to Sardis.

Dr. M. Wolfe has located at Bay St. Louis to practice, after an internship in Charity Hospital, New Orleans.

Dr. R. B. Wilson has moved from Philadelphia to Carthage, where he will specialize in minor surgery.

Fellowships have been granted by the Rockefeller Foundation for a year's study at either Harvard or Johns Hopkins to the following Mississippi full-time County Health Officers: Dr. Norris C. Knight, Sunflower County; Dr. C. J. Vaughn, Holmes County; and Dr. A. R. Perry, Washington County.

Dr. Earl Webster Green, Wiggins, and Miss Grace Cowley were married in July.

Dr. Lonnie Moseley, Jackson, and Miss Frances Ransom were married in September.

Deaths

Dr. William C. Anderson, Forest, aged 59, died August 23 of carcinoma of the lung.

Dr. James M. Jinkins, Crenshaw, aged 59, died May 21 of cerebral hemorrhage.

Dr. Hilliard Elias Griffin, Coffeeville, aged 55, died August 12 of chronic interstitial nephritis and uremia.

Dr. John H. Giles, Ripley, aged 76, died July 16 of cerebral hemorrhage.

Dr. Benjamin L. Culley, Oxford, aged 80, died July 19 of heart disease.

Dr. W. W. Gore, Embry, aged 78, died July 13 of cerebral hemorrhage.

MISSOURI

The Missouri-Kansas Neuropsychiatric Society held its annual meeting in October at Kansas City, following the meeting of the Kansas City Southwest Clinical Society.

Dr. Dudley S. Conley, Columbia, has been chosen by the Board of Curators of the University to succeed Dr. Edgar Allen, resigned, as Dean of the University of Missouri School of Medicine and Director of University Hospitals.

Dr. W. McKim Marriott, St. Louis, was presented with a handsome wrist watch by his pupils in North Carolina, following a presentation by Dr. Marriott on the program of the North Carolina Pediatric Society at a meeting in Greensboro.

The Association of Assistant Physicians of Missouri held a meeting in September at the State Hospital, Fulton.

Dr. Arthur Rochford McComas, Sturgeon, was honored at the recent annual meeting of the State Medical Association with a testimonial dinner, marking the anniversary of forty-three years in the practice of medicine.

Dr. W. J. Bryan, Flat River, is the newly appointed Superintendent of the State Sanitarium at Mount Vernon, succeeding Dr. S. A. Newman, deceased.

Dr. Willard Bartlett, St. Louis, was a guest speaker on the program of the Kentucky State Medical Association's annual meeting in September.

Dr. Timothy S. Bourke, Kansas City, is the newly appointed member of the State Board of Health, succeeding Dr. H. S. Grove, Linn, resigned.

Dr. E. E. Sexton, St. Louis, has gone to Germany, where he will take work in the urological clinics at Berlin.

Dr. Charles E. Eimer, St. Louis, and Miss Agnes Stanley were married in July.

Dr. Willis H. McKean, Kansas City, and Miss Virginia Shelton were married in August.

Deaths

Dr. Harvey Samuel McKay, St. Louis, aged 54, died July 22 of nephritis.

Dr. Milton J. Hopkins, St. Louis, aged 73, died July 15 of diabetes mellitus.

Dr. Benedict P. Wentker, St. Charles, aged 59, died August 4 of pulmonary embolism.

Continued on page 28

AN ADVANCE IN OPIATE MEDICATION

Dilaudid

dihydromorphinone hydrochloride

Dilaudid possesses several advantages over morphine in pre-operative and post-operative procedure, acts quickly, is a stronger analgesic, and has less marked secondary effects. - - - -

1/20 grain Dilaudid is usually given in place of 1/4 grain morphine.

Hypodermic tablets, 1/32 grain and 1/20 grain.
Oral tablets, rectal suppositories, 1/24 grain.
Ampules, 1/32 grain. Powder, readily soluble.

Further information upon request. Send your narcotic order for a sample tube of 20 hypodermic tablets 1/32 grain each.

BILHUBER-KNOLL CORP. - 154 OGDEN AVENUE JERSEY CITY, N. J.

VERTIGO IN BLACK AND WHITE

Radiograph of a diseased mastoid

VERTIGO ranks high among the more common subjective symptoms . . . Yet it is one of the least definite. It may be due to a minor disturbance and be of little consequence; in other cases it can indicate serious functional disorder.

A frequent cause of dizziness is disease of the middle ear, which may lead to irreparable damage to adjacent anatomy if not detected early. Radiographs of the mastoid area offer the only positive means. They not alone reveal extensive bone destruction but also show incipient changes, proper treatment of which insures favorable prognosis.

Radiograph to be Certain

For differential diagnosis . . . to guide in treatment . . . and to record results—radiograph. Refer your patients to a competent radiologist.

● *If you would like to receive the free publication, "Radiography and Clinical Photography," mail the coupon.*

EASTMAN KODAK COMPANY, *Medical Division*,
347 State Street, Rochester, N. Y.

Gentlemen: I should like to receive the free magazine, "Radiography and Clinical Photography," regularly.

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Backward and Problem Children

require intensive scientific training in a suitable environment

THE BANCROFT SCHOOL

One of the oldest private boarding schools of its kind in the United States, provides unsurpassed facilities for exceptional children. The School maintains winter quarters in New Jersey, and a summer camp on the coast of Maine. It is an incorporated body, operated "not for profit," and controlled by a Board of Trustees, whose aim it is to offer the highest type of scientific and intensive education attainable. It has a competent corps of nurses, a resident physician and a medical staff of national reputation; organized to give the fullest possible cooperation to physicians, whether they wish to retain medical supervision of patients enrolled in the School, or prefer to delegate both treatment and training to the School staff.

ILLUSTRATED CATALOG ON REQUEST

Box 650, Haddonfield New Jersey

Continued from page 26

Dr. Charles Wesley Burgess, Bethany, aged 89, died August 1 of cerebral thrombosis.

Dr. Harvey Gilmer Mudd, St. Louis, aged 75, died August 16 in a Boston hospital, following an operation for prostatitis.

Dr. George M. Carr, Marquand, aged 75, died July 27 of cirrhosis of the liver.

Dr. Oscar Martin C. Chamberlain, Rockport, aged 51, died suddenly August 14 of heart disease.

Dr. William S. Barnes, Pilot Grove, aged 61, died May 29 of carcinoma of the liver and gallbladder.

Dr. Walter H. Fuchs, St. Louis, aged 64, died August 16 of bronchopneumonia and peptic ulcer.

Dr. Edward Judson Burch, Carthage, aged 66, died August 3 of cerebral embolism.

Dr. James W. Temple, Rolla, aged 84, died August 14.

Dr. Herman J. Whittier, Kansas City, aged 77, died August 15 of hypostatic pneumonia.

Dr. Julius Caesar Wise, Kansas City, aged 89, died July 28 of arteriosclerosis.

Dr. Arthur Jackson, Lockwood, aged 48, died July 26 of uremia.

Dr. Harbin Jacob Stevens, Medill, aged 85, died May 21 of senility.

Dr. Benjamin W. Toothaker, St. Joseph, aged 58, died August 4, following an operation.

NORTH CAROLINA

The Veterans of Base Hospital, Number 65, organized in 1917 by the late Dr. J. W. Long, held their eleventh annual reunion and memorial service at Greensboro in September, with an attendance of approximately 125 members, recruited from over the State of North Carolina.

The High Point Academy of Medicine has adopted a resolution to be presented before the High Point City Council calling for a full-time City Health Officer, who is a licensed physician.

Dr. F. M. Register, Wayne County Health Officer for the

Continued on page 30

RELIEF IN CYSTITIS

THE RESULT OF PYRIDIUM ORALLY ADMINISTERED

With the oral administration of Pyridium a clearing of cloudy urine may be expected in cases of urinary infection. Prompt relief of the distressing symptoms that often accompany such conditions as cystitis, pyelitis, and urethritis is usually obtained.

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DIPHTHERIA TOXOID

Alum Precipitated

GILLILAND

Confers active immunity against Diphtheria by the use of a

Single Injection

The representative in charge of the Gilliland Exhibit (Booth No. 45) at the Richmond Meeting will gladly give you literature on this new product.

THE GILLILAND LABORATORIES

Marietta, Pa.

Two Suture Essentials combined in
D & G Kalmerid Non-Boilable Catgut

Extreme Flexibility

Heat Sterilization

. . . sterile under the most rigid bacteriologic methods ever devised for testing catgut

DAVIS & GECK, INC. - 217 DUFFIELD STREET - BROOKLYN, N. Y.

D&G Sutures will be displayed at Booth No. 25—Southern Medical Association Meeting

A Valuable Aid In Building Sturdy Bodies

Horlick's, prepared with water, has been shown in tests made at a prominent University hospital to be exceedingly beneficial in promoting better appetite and consistent gains in weight in children. When 2½ to 3 heaping teaspoonfuls are mixed with a glass of milk, the nutritive energy value of the milk is doubled, and the child not only is pleased with the flavor, but the physician is pleased, too, with the results.

Horlick's Malted Milk Corp.
Racine, Wis.

Please send me ..... individual weight charts for pre-school children and ..... charts for school children, with spaces for physician's medical examination report.

.....

.....

S. M. J. .....

Continued from page 28

past three years, and formerly with the State Board of Health, is the newly elected Superintendent of the Caswell Training School near Kinston.

The University of North Carolina announces a short course in public health to be offered shortly, with the cooperation of the Schools of Medicine, Public Administration and Engineering and the Graduate School.

Dr. Frederic M. Hanes, Winston-Salem, has succeeded Dr. Harold Amoss as Professor of Medicine and Head of the Department of Medicine, Duke University School of Medicine, Durham.

Dr. William deB. MacNider, Chapel Hill, recently spent a period of study in the Library of the Surgeon General's office in Washington, D. C.

Pupils in North Carolina of Dr. J. McKim Marriott, St. Louis, presented him with a handsome wrist watch at a meeting of the North Carolina Pediatric Society at which Dr. Marriott was the guest speaker.

Dr. W. C. Tate, Banner Elk, in charge of Grace Hospital, was recently elected to Fellowship in the American College of Surgeons.

Dr. Thomas Meares Green and Dr. Donald Brock have opened offices in partnership in Wilmington for the practice of general surgery.

Dr. C. P. Williamson has opened offices in the Professional Building, Charlotte.

Dr. J. A. Gill, Wake Forest, has located at Elizabeth City for the practice of medicine, after obtaining his medical degree at Syracuse University, Syracuse, New York.

Dr. Alexander McNeil Cox, Greensboro, and Miss Thelma E. Beazley were married in June.

Deaths

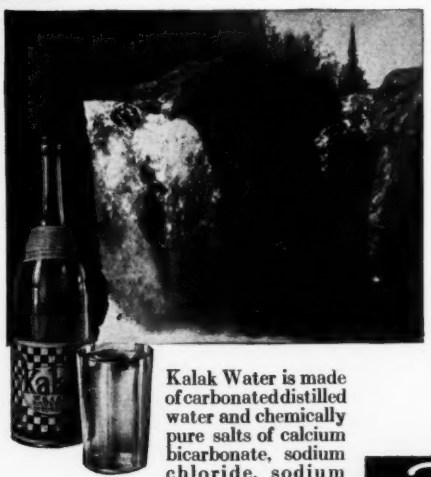
Dr. Dallas W. Chestnutt, Wilmington, aged 55, died August 2 of malignant tumor of the neck.

Dr. Frank Bright, Hendersonville, aged 67, died August 7 of angina pectoris.

Dr. Whitmell Pugh Small, Washington, aged 82, died July 24 of carcinoma of the prostate.

Continued on page 32

A Pure, Palatable, Carbonated PREPARED WATER



THERE are many conditions, no doubt, where you will want your patient to increase his daily intake of water.

In such cases, why not suggest the use of Kalak Water, the palatable, carbonated alkaline water prescribed by physicians for over twenty years.

Kalak Water is made of carbonated distilled water and chemically pure salts of calcium bicarbonate, sodium chloride, sodium phosphate and bicarbonates of magnesium, potassium and sodium.

Kalak

Klim message of the month

Your own whole milk formula

or

a "fixed" baby food?

Scientific feeding of infants calls for individualization of the formula prescribed—it fits the food to the baby not the baby to the food. KLIM WHOLE POWDERED MILK is a safe and uniform milk, always fresh and ready for use, and especially valuable in making up your own prescriptions.

AUTHORITY: "As interest in infant feeding has increased, and as practitioners have begun to learn more about the modification of milk, the use of the proprietary foods has correspondingly decreased.

There is nothing in any proprietary food which cannot be otained in any ordinary milk mixture prepared with the ordinary materials used (various sugars, starches, dextrins, creams, etc.) and it is a great deal better for the practitioner to prescribe his own mixture than to use blindly one which is furnished him in a can. . . If better results in infant feeding could be obtained by the use of proprietary foods than in any other way we should all use them exclusively. Such is not the case."

—Louis Webb Hill, "Practical Infant Feeding."

SAFE, PURE WHOLE MILK IN POWDERED FORM . . .

NRA MEMBER U.S. WE DO OUR PART

KLIM

ACCEPTED AMERICAN MEDICAL ASSN.

Literature and sample, including infant feeding calculator, will be sent on request.

THE BORDEN COMPANY, DEPT. KM101, 205 E. 42ND ST., NEW YORK, N. Y.

Continued from page 30

OKLAHOMA

The Oklahoma City Clinical Society held its fourth annual clinical conference October 30 to November 2.

Dr. Lee W. Cotton, Enid, is the newly appointed Health Officer of Garfield County.

The Carter County Medical Society recently held an open meeting for the public.

Dr. J. P. Gibson, Lawton, has resigned as Assistant Physician at the Kiowa Indian Hospital, and has accepted a position in the Christian College, Abilene, Texas.

Dr. C. R. Silverthorne and Dr. C. E. Williams, Woodward, attended an eye, ear, nose and throat clinic in Denver recently.

Deaths

Dr. Barton H. Moss, Willow, aged 88, died July 20.

Dr. Paul Sanger, Drumright, aged 59, died July 25 of angina pectoris.

Dr. William Patrick Lipscomb, Muskogee, aged 46, died July 23.

Dr. William Emery Harrington, Depew, aged 58, died August 18 of heart disease.

Dr. John Bodel Smith, Durant, aged 65, died August 6.

Dr. R. H. Hannah, Prague, aged 75, died July 17 of a heart attack.

SOUTH CAROLINA

Dr. J. D. Whaley, Charleston, is the newly elected President of the South Carolina Urological Association.

The Second District Medical Society held a meeting at Batesburg recently and elected the following officers for the coming year: Dr. J. H. McIntosh, Columbia, President; Dr. W. W. King, Batesburg, Vice-President; and Dr. David Adcock, Columbia, Secretary and Treasurer.

Dr. B. M. Montgomery has been appointed to succeed Dr. G. R. O'Daniel as Health Officer of Dorchester.

Dr. John Mikell has located in Sumter to practice.

Dr. L. J. Brannon, Greer, has opened offices in Columbia to practice, after completing an internship in the Columbia Hospital.

Dr. John H. Young, Columbia, is taking postgraduate work in eye, ear, nose and throat at the New England Sanitarium, Stoneham, Massachusetts.

Dr. F. D. Jones, Clinton, attended summer school at George Washington University, Washington, D. C.

Dr. Leland J. Brannon, Columbia, and Miss Viola Mobley were married August 26.

Dr. James C. Moore, Marion, and Miss Evelyn Brabham were married August 5.

Dr. Wilfred J. Rivers and Miss Mildred L. Tillinghast, both of Eastover, were married August 1.

Dr. O. David Garvin and Miss Evelyn M. Williamson, both of Ridge Springs, were married August 6.

Deaths

Dr. Benjamin G. Gregg, Florence, aged 72, died suddenly August 7 of heart disease.

Dr. Jacob L. Bowers, Little Mountain, aged 72, died August 29 of cerebral hemorrhage.

TENNESSEE

Dr. E. W. Goodpasture, Nashville, Professor of Pathology at Vanderbilt University School of Medicine, was recently made Honorary Fellow of the Gorgas Medical Society of the University of Alabama.

Dr. J. R. Thompson, Jr., Jackson, has been appointed by the President of the State Medical Association to succeed Dr. A. B. Dancy, deceased, as Councilor of the Eighth District.

Dr. Alvin J. Webber announces the opening of an office in Bearden for general practice.

Dr. S. F. Strain, Knoxville, has opened offices in the Medical Arts Building.

Dr. Owen Moore, Knoxville, has opened an office in the Medical Arts Building.

Dr. J. Lawrence Cockran, Knoxville, has opened an office in the Medical Arts Building.

Dr. John D. McCulloch, Knoxville, has opened an office in the Medical Arts Building.

Continued on page 34

When You Attend the *Richmond Meeting*

SOUTHERN MEDICAL ASSOCIATION

NOVEMBER 14-17, 1933

and Post-Meeting at Washington, November 18th, MAKE SURE

You Travel Via

SEABOARD AIR LINE RAILWAY

The line that affords the best in rail service, with dining car meals unsurpassed. No changes enroute from Memphis, Birmingham, Atlanta, Columbus, Miami, West Palm Beach, St. Petersburg, Tampa, Jacksonville, Savannah, Columbia, Raleigh or intermediate points to Richmond or Washington.

Passenger Traffic Representatives or Agents will be pleased to make Pullman Reservations and arrange tickets at Reduced Convention Fares, upon application.

SEABOARD AIR LINE RAILWAY

FALL AND WINTER ARE THE DANGEROUS SEASONS FOR RESPIRATORY INFECTIONS!

"The Main Danger of Rickets is that it Decreases the Resistance"

"Rickets is a disease which affects the entire body although the most noticeable signs of it are seen in the bones." . . . .

"While rickets is often looked upon as a disease which in itself does not threaten life, they state that it does threaten life and may be the direct cause of death when it deprives the thorax of its rigidity. It increases the danger to life in respiratory infections, for example, tuberculosis and pneumonia."

(*McCollum & Simmonds, The Newer Knowledge of Nutrition,* 4th Ed., 1929.)

Clinical experience shows that any baby taking its daily ration of DRYCO *is thereby protected against rickets*

PRESCRIBE

DRYCO

NRA MEMBER U.S. WE DO OUR PART

Made from superior quality milk from which part of the butterfat has been removed, irradiated by the ultra-violet ray, under license by the Wisconsin Alumni Research Foundation (U. S. Pat. No. 1,680,818) and then dried by the "Just" Roller Process.

ACCEPTED AMERICAN MEDICAL ASSN.

PROTECT INFANTS AGAINST RICKETS NOW!

Samples and literature on request

THE DRY MILK COMPANY, Inc., Dept. SM, 205 E. 42nd St., New York, N. Y.

ALL DRYCO IN THE HANDS OF DRUGGISTS IS IRRADIATED

Continued from page 32

Dr. Donald L. Mishler, Nashville, has opened an office at 2629 Gallatin Road, with practice limited to eye, ear, nose and throat.

Dr. Alex Shipley has become associated in practice with his father, Dr. Z. L. Shipley, Cookeville, after completing an internship in Buffalo, New York.

Dr. V. E. Massey, Huntington, has purchased the Bank of Huntington Building, which he is remodeling for his office.

Dr. Harold M. Kelso, Gallatin, is the newly appointed Health Officer of Sumter County, succeeding Dr. Geoffrey M. Morris.

Dr. Waller S. Leathers, Dr. Owen H. Wilson, both of Nashville, and Dr. Edward Clay Mitchell, Memphis, are the newly appointed members of the State Public Health Council.

The East Tennessee Medical Association met in Knoxville in September and elected the following officers for the coming year: Dr. Joseph A. Hardin, Sweetwater, President; and Dr. Henry A. Callaway, Maryville, Secretary.

Dr. Spencer Boyd McClary, Jr., Etowah, and Miss Almarine Nugent were married in July.

Deaths

Dr. Edwin Brown Anderson, Chattanooga, aged 60, died August 28 of heart disease.

Dr. Lewis M. Scott, Jellico, aged 71, died July 19.

Dr. J. A. Clark, Morrison, aged 61, died July 25 of gunshot wounds received at the hands of robbers.

Dr. August S. Keim, Nashville, aged 61, died July 17.

Dr. C. C. Bentley, Quito, aged 82, died July 23 of heart disease.

Dr. Joseph Spencer Hill, Mountpleasant, aged 79, died August 3 of cerebral hemorrhage.

Dr. Raymond Marvin Graham, Clarksville, aged 51, died July 31 of carcinoma of the right lung with metastasis to the left frontal lobe of the brain.

Dr. Van Harlingen Coles, Nashville, aged 61, died August 12 of coronary thrombosis.

Dr. Samuel Franklin Casenburg, Knoxville, aged 66, died July 30 of chronic myocarditis.

Dr. Henry Jackson Hayes, Memphis, aged 44, died September 15.

Dr. John R. Green, Nashville, died September 3.

TEXAS

The Texas Ophthalmological and Otolaryngological Society will meet in Dallas December 8 and 9 for its annual session, with headquarters at the Adolphus Hotel. Dr. E. H. Cary is in charge of local arrangements.

The Bexar County Medical Society and the Bexar County Medical Library have moved into a new home recently purchased, which was formerly one of San Antonio's beautiful residences.

The Postgraduate Medical Assembly of South Texas will meet in Houston November 21, 22, 23 and 24 for its second annual assembly.

Dr. Herbert E. Hipps, Marlin, has left for New York, where he will visit orthopedic clinics before sailing for Europe, where he will do further work in orthopedic clinics in England and on the Continent.

Dr. William B. Veazey, Huntsville, has been appointed to succeed Dr. Edgar W. Anderson as medical supervisor for the Texas prison system.

Dr. Eugene O. Chimene, Austin, formerly Assistant Health Officer of Austin, is the newly appointed Director of the combined health unit for Austin and Travis County.

Dr. Don C. Peterson, Austin, has been appointed Health Officer for Gregg County.

Dr. G. H. DeLaPerriere has moved from Galveston to Bremond.

Dr. Herbert E. Hipps has moved from Dallas to Marlin.

Dr. L. K. Ory has moved from Abilene to Comanche.

Dr. C. B. Sanders has moved from Galveston to Dallas.

Dr. E. C. Schulz has moved from Beeville to Del Rio.

Dr. E. O. Watkins has moved from Longview to Greggton.

Dr. George W. Lacy and Miss Camilla Fort, both of Fort Worth, were married recently.

Dr. Raymond E. Selders and Miss Wilma Scheer, both of Houston, were married in June.

Deaths

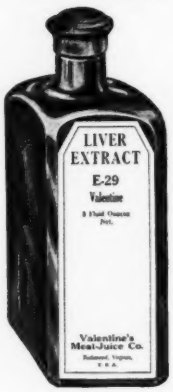
Dr. George B. Hamilton, Olney, aged 54, died July 19.

Dr. James Addison Daniels, Carthage, aged 65, died September 4.

Continued on page 36

LIVER EXTRACT E-29 VALENTINE

8 ounces net



Advantages of Liver Extract E-29 Valentine

Contains the water soluble constituents of liver in concentrated form (coagulable protein removed).

E-29 is a simple aqueous extract of liver, made without the use of alcohol and contains the Cohn-Minot principle for pernicious anemia as well as the Whipple fraction for secondary anemia.

Effective in secondary anemia in conjunction with iron.

Uniformly potent.

Contains vitamin B "complex."

Economical form of liver therapy for both primary and secondary anemia.

NOW ALSO WITH IRON
SAME SIZE AND PRICE

VALENTINE'S MEAT-JUICE COMPANY

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MELLIN'S FOOD—*MORE* THAN A CARBOHYDRATE

The main purpose of all milk modifiers is the same—to provide carbohydrates in adequate amount as a part of the infant's diet.

Mellin's Food is a carbohydrate—*and more.*

It contains 58.88% maltose and 20.69% dextrins.

It contains 10.35% protein, extracted from the wheat and barley which are its chief ingredients.

It contains 1.05% mineral salts derived from the whole grain.

It contains 3.25% potassium bicarbonate, added during the process of manufacture.

It tends to promote normal bowel action.

It has been favorably known the world over for more than half a century, and its use is consistent with today's sound pediatric knowledge and practice.

Literature and Samples of Mellin's Food Gladly Supplied—to Physicians Only.

MELLIN'S FOOD COMPANY, Boston, Mass.

Continued from page 34

Dr. Charles C. Gidney, Plainview, aged 66, died August 24.

Dr. Heinrich M. Schugt, El Paso, aged 74, died July 13 of heat prostration and edema of the lungs.

Dr. Billie Varner Ellis, Houston, aged 61, died July 12.

Dr. William Ryder Mathers, McKinney, aged 70, died August 11.

Dr. Eli Atchison Johnston, Amarillo, aged 83, died August 3.

Dr. Thomas H. P. Duncan, Mercedes, aged 62, died July 21 of malignant neutropenia.

Dr. Jesse Overton, Troup, aged 62, died July 26.

Dr. John W. Rush, Bloomington, aged 74, died suddenly July 18 at his office.

Dr. Frank Childs, Honey Grove, aged 57, died suddenly June 30.

VIRGINIA

The Medical College of Virginia, through its President, Dr. W. T. Sanger, announces the acquisition of approximately 400 volumes to the Medical Library, these volumes being the gift of Dr. William Francis Cooper, Newport News.

Dr. E. L. Stebbins, formerly with the State Health Department, has been appointed to succeed Dr. A. L. McLean, resigned, as Director of the Henrico County Health Department.

The Virginia Pediatric Society met at the Hotel Carroll, Lynchburg, in October for its annual session.

Dr. Harry J. Warthen has opened offices in the Medical Arts Building, Richmond, after completing work in European clinics, and will limit his practice to surgery.

Dr. William H. Turner, Jr., has located at Round Hill for general practice, having just returned from several years' service in the Presbyterian mission work in China.

Dr. John Hamilton has located at Nassawadox with a private office for the practice of internal medicine.

Dr. W. L. Varn, South Hill, is the newly appointed service officer of the Crews-Epperson-Puryear Post No. 79, American Legion, for the coming year.

Continued on page 38

SCANTY, painful or irregular menstruation usually results in fixed, faulty physiological habits. Treatment is more successful if instituted early.

Take advantage of an endocrine product which represents the best thought of research and clinical medicine.

HORMOTONE

BOTTLES OF 50 and 100 TABLETS

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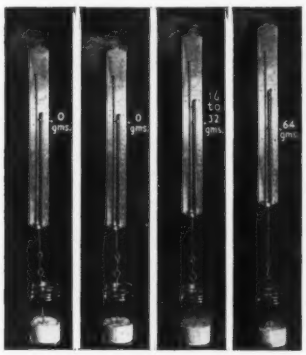
CURD TENSION

- AND INFANT FEEDING -

ITS · EFFECT · UPON · THE · ASSIMILATION · OF PROTEINS



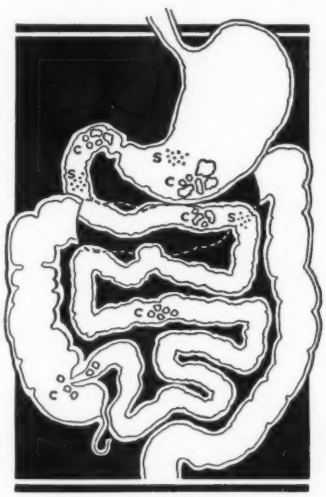
BREAST MILK | SIMILAC | POWDERED MILK | COW'S MILK

"THE most available and the most easily digestible form of protein for infants is the protein of milk. The protein of breast milk is more digestible than that of cow's milk."

"In the light of our present knowledge, the chief cause of the difference in the digestibility of the protein of human milk and that of cow's milk lies in the greater proportion of casein in cow's milk."

"It is the formation of large curds which renders the casein of cow's milk so much more difficult of digestion by the infant than that of human milk. If the formation of large casein curds in the stomach can be prevented, the casein of cow's milk is easily digested."[1]

In SIMILAC the large casein curds are not formed. The curds formed when the gastric enzymes act upon SIMILAC are small and flocculent, registering zero on the tensiometer, as shown in the illustration, hence more easily digested.



C—Cow's milk S—Similac
Schematic drawing of the relative size of the curds of cow's milk and Similac vomited by six weeks old puppies after one-half hour's ingestion.

The finer the curd the greater the surface area. The greater the surface area the more exposed are the fats, carbohydrates, proteins and salts to the digestive enzymes. Result . . . a more complete utilization of the food elements.

[1] Morse and Talbott, Diseases of Nutrition and Infant Feeding, pgs. 214, 215.

Samples and literature will be sent on receipt of your prescription blank.

SIMILAC—Made from fresh skim milk (casein modified); with added lactose, salts, milk fat and vegetable and cod liver oils.

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DIETETIC LABORATORIES, INC.,
COLUMBUS, OHIO.

OXYGEN

and Equipment for its Administration

With Oxygen being used preoperatively, postoperatively, in pneumonias, in cardiac cases, etc., it is essential that every physician be familiar with the best in equipment for its administration.

We offer you—for sale or rental—leading makes of Oxygen Tents, Nasal Catheter Apparatus, Bedside Inhaling Outfits, as well as equipment for the treatment of Angina Pectoris by inhalation of Carbon Dioxid.

Write for Circulars

1. The Real Story of Oxygen for the Medical Profession.
2. Oxygen as a Therapeutic Agent.
3. Descriptive Matter on Oxygen Tents.
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5. What You Get for Your Dollar When You Purchase Medical Gases.

Etc., Etc.

Puritan Compressed Gas Corp.

Manufacturers of

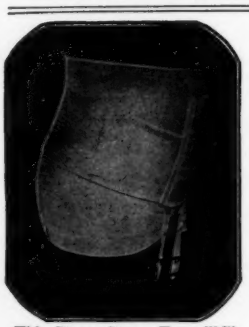
OXYGEN—NITROUS OXID—
ETHYLENE—CARBON DIOXID—
PERCENTAGE MIXTURES

Offices in Most Principal Cities

NRA MEMBER U.S. WE DO OUR PART

Trademark Registered **STORM** Trademark Registered

Binder and Abdominal Supporter



Gives perfect uplift and is worn with comfort. Made of Cotton, Linen or Silk, washable as underwear.

Three distinct types of Storm Supporters — many variations of each type.

This Photo Shows Type "N"

STORM supporters are made for all conditions needing abdominal uplift. Ptosis, Hernia, Pregnancy, Obesity, Relaxed Sacro-Iliac, Articulations, Kidney Conditions, Post-Operative Support, etc.

Each Belt Made to Order **Ask for Literature**

KATHERINE L. STORM, M. D.

Originator, Owner and Maker

1701 Diamond St. Philadelphia

Continued from page 36

Dr. Lee E. Sutton, Richmond, has moved into new offices at 2601 Grove Avenue.

Dr. Basil B. Jones, Dr. A. S. Hurt, Jr., and Dr. R. A. Nichols, Jr., all of Richmond, have moved into new offices at 1028 West Franklin Street.

Dr. M. Tieche Shelton has located at Harrisonburg, with offices in the Professional Building.

Dr. J. E. Harris, Winchester, has opened offices for private practice.

Dr. Daniel D. Talley, Richmond, has been appointed to succeed Dr. Alfred L. Gray, deceased, as Professor of Roentgenology at the Medical College of Virginia.

Dr. Meyer Bitsky, Richmond, has opened offices at 1103 West Franklin Street for the practice of general medicine, emphasizing obstetrics.

Dr. J. A. Ronan has located at Alexandria for general practice, with offices at 108 North Washington Street.

Dr. Alfred M. Palmer has located at Clarendon to practice medicine.

Dr. J. G. Lyerly has opened offices in the Medical Arts Building, Richmond, with practice limited to neurological surgery and oral and plastic surgery of the face.

Dr. William Beverley Wilkins has located at Alexandria, with offices in the Barrett Building.

The Medical College of Virginia recently unveiled a portrait of Dr. John Cullen, the first Professor of Theory and Practice of Medicine, which was a gift to the College from the descendants of Dr. Cullen.

The Fairfax County Medical Society, at a recent meeting, elected the following officers for the coming year: Dr. Sigmund Newman, Vienna, President; Dr. R. L. Wilkins, Alexandria, and Dr. E. S. Waring, Fairfax, Vice-Presidents; Dr. F. M. Brooks, Fairfax Station, reelected Treasurer; and Dr. A. L. Carson, Jr., Fairfax, reelected Secretary.

Dr. Charles Edward Holderby, Williamsburg, and Miss Frances Marion Trainum were married in June.

Dr. George Edward Waters, Blackstone, and Miss Virginia Clayton Martin were married in June.

Dr. Ernest G. Scott, Lynchburg, and Miss Adele Adelberg were married September 2.

Dr. James Newton Williams and Miss Dorothy Henriette Behle, both of Richmond, were married August 29.

Dr. James Albert Miller and Miss Susan Cover Steck, both of Winchester, were married September 30.

Dr. Linwood Farley and Miss Evelyn Byrd Nelson, both of Courtland, were married September 23.

DEATHS

Dr. T. G. Brown, Gainesville, aged 76, died August 3 of arteriosclerosis and hemiplegia.

Dr. William J. Weindel, Marion, aged 58, died September 7.

Dr. William Ryland Gwathmey, Ruark, aged 63, died August 25.

Dr. Albert Edwards Wilson, Norfolk, aged 65, died suddenly September 8.

WEST VIRGINIA

The Hospital Association of West Virginia met at the Stonewall Jackson Hotel, Clarksburg, in October for its eighth annual session.

Dr. Ralph Cadwallader Mitchell and Miss Martha Cawood, both of Eccles, were married in June.

Dr. Peter Allen Haley, Charleston, and Miss Mary Alice Spillman were married June 17.

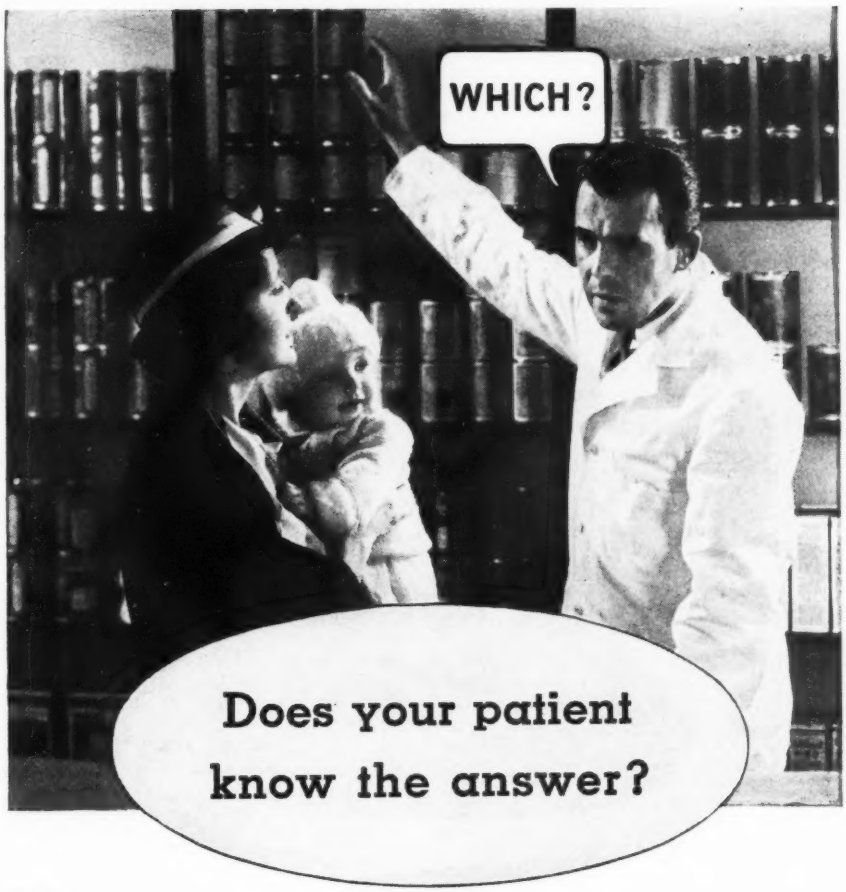
Dr. George W. Skaggs has moved from Page to Princeton, with offices at 208 Highland Avenue.

DEATHS

Dr. Frank M. Kearns, Hundred, aged 64, died August 21 of carcinoma of the rectum.

Classified Advertisements

ASSISTANCE OFFERED TO MEDICAL WRITERS. Research. Abstracts. Translations (all languages). Papers prepared from author's data. Ten years' experience with leading physicians and appointments on medical journals of highest standing. I employ no assistants; all my work is done personally and is reliable. Florence Annan Carpenter, 413 St. James Place, Chicago, Ill.



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Borden's

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EVAPORATED MILK

This mother registers surprise while the gas meter registers 540 cubic feet of gas per month for the cereal she cooks one hour every day. Pablum (Mead's Cereal pre-cooked) requires no cooking and saves this expense. The mother need only add water or milk (of any temperature) to serve Pablum for the baby and the other members of the household.

PABLUM

(Wheatmeal, oatmeal, cornmeal, wheat embryo, alfalfa leaf, and beef bone. Supplies vitamins A, B, E, and G and calcium, phosphorus, iron, copper, and other essential minerals.)

SAVES GAS

YOUR own wife can verify that when cereal is cooked one hour, 18 cubic feet of gas are consumed daily or 540 feet monthly. At $1.50 per thousand cubic feet, the gas bill is increased $0.81 per month.

Another reason Pablum is more economical than ordinary cooked cereal is that no allowance must be made "for the pot." The mother can prepare the *exact amount* required. If the child clamors for more Pablum, which frequently happens because of its delicious flavor when properly prepared, another serving of this hot-or-cold cereal can be prepared in less than a minute.

The above economic factors are in addition to the important advantage that because of its quick preparation, the mother is not compelled to arise an hour earlier in the morning to cook cereal over a hot stove. Instead, she can obtain the extra rest which is so necessary for her health after confinement and during nursing.

Pablum, moreover, is rich in minerals and vitamins, is base-forming and nutritious.

MEAD JOHNSON & CO., Evansville, Ind.

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COUNCIL ACCEPTED

economical for vitamin **A**

MEAD'S HALIBUT LIVER OIL

(Without Viosterol)

32,000 U.S.P. Vitamin A Units and 200 Steenbock Vitamin D Units per gram. 10 cc. and 50 cc. bottles.*

economical for vitamin **D**

MEAD'S VIOSTEROL IN OIL 250 D

(Contains No Vitamin A)

3,333 Steenbock Vitamin D Units per gram. 5 cc. and 50 cc. bottles.

economical for vitamins **A** and **D**

MEAD'S VIOSTEROL IN HALIBUT LIVER OIL 250 D

32,000 U.S.P. Vitamin A Units and 3,333 Steenbock Vitamin D Units per gram. 5 cc. and 50 cc. bottles.

*brown bottles in light-proof cartons to protect against deteriorating action of light; supplied with combination dropper-stopper.

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One of a series of advertisements prepared and published by PARKE, DAVIS & CO. in behalf of the medical profession. This "See Your Doctor" campaign is running in the *Saturday Evening Post* and other leading magazines.

"Things I wish my Mother hadn't taught me"

EVERY young woman who embarks upon the great adventure of Motherhood is overwhelmed with advice from those who love her most.

The advice may be on some apparently trivial matter—clothing, feeding, what to do for an upset stomach, or the way to nip a cold in the bud.

Yet many a brand-new mother has learned that often the reward for following such advice is regret. She has said, not in bitterness, but in sadness, "I wish I had never been told to do that." She has learned, too late, that many of the beliefs of a generation ago have been cast into disrepute by the findings of recent years.

For these past few decades have been a Golden Age of Medicine. Much has been learned . . . much has been disproved. And, as a result of developments and discoveries that have taken place since you yourself graduated from childhood, the baby of today has a better chance of arriving into the world safely . . . of successfully weathering the treacherous storms of infanthood . . . and of enjoying a healthy, vigorous childhood.

A better chance, that is, if medical science is given the opportunity of exerting its influence on the child and on the mother . . . It is difficult not to take advice from those who love us most. But when so fragile and precious a thing as a baby's health is at stake, there is one person, and one person only, whose advice you can safely follow.

That person is your doctor.

PARKE, DAVIS & CO.
DETROIT, MICHIGAN

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